COUNTY BOROUGH OF CORK.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR 1930.

JOHN C. SAUNDERS, M.B., B.Ch., D.P.H.,
Medical Officer of Health.

EAGLE PRINTING WORKS, CORK

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CORK:
EAGLE PRINTING WORKS, SOUTH MALL
1931

PUBLIC HEALTH STAFF

Medical Officer of Health :

John C. Saunders, M.B., B.CH., B.A.O., D.P.H.

Assistant Medical Officer of Health :

Patrick F. Fitzpatrick, M.B., B.CH., B.A.O., D.P.H.

Public Analyst :

Daniel J. O'Mahony, F.C.S.

Chief Veterinary Officer :

S. R. J. Cussen, D.V.S.M., M.R.C.V.S.

Assistant Veterinary Officers :

D. P. McCarthy. M.R.C.V.S.
M. J. Joyce, M.R.C.V.S.
N. Nicholson, M.R.C.V.S.
J. R. Carey, M.R.C.V.S.
C. Lucey, M.R.C.V.S.
J. Brennan, M.R.C.V.S.

Sanitary Inspectors :

Daniel O'Keeffe.
John O'Brien.
Timothy Newman.
Charles Murray.
Daniel Murphy.
James V. Nerney.
Miss Nora Dunn.

Tuberculosis Nurse :

Miss S. Lyndon.

Maternity and Child Welfare Nurses :

Miss V. O'Brien.
Miss Connolly.
Miss Stocker.

To the Lord Mayor, Aldermen and Councillors
of the County Borough of Cork,

My Lord Mayor and Genlemen,

I submit herewith my Annual Report for the year 1930.

As this is the first Annual Report which I have the honour to submit, I have not confined myself to a bare statement of the facts so far as they concern the year under review, but have endeavoured to make a general survey, in a small way, of the Health of the City as far back as the records at my disposal permit. The last Annual Report was published in the year 1922, so that a great deal of work was entailed in bringing tables and other records up to date. This accounts for the delay in the production of the present Report.

I wish to acknowledge the assistance which I have received from Dr. W. J. O'Donovan, Department of Bacteriology, University College, Cork, in the compilation of the section on water examination, from Mr. S. R. J. Cussen, D.V.S.M., M.R.C.V.S, Chief Veterinary Officer, in the section dealing with the control of meat and milk supplies; Mr. D. J. O'Sullivan, B.Sc., A.I.C., City Analyst's Office, in the section dealing with Food and Drugs, and Capt. J. J. Lawlor, University College, for compiling the Meteriological Tables.

I have the honour to remain,

Your obedient servant,

J. C. SAUNDERS.

COUNTY BOROUGH OF CORK.

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FOR THE YEAR 1930.

GENERAL STATISTICS.

Area (in acres)	2,618
Population (Census 1926)	78,490
Birth Rate	25.35
Death Rate (crude)	16.10
Tuberculosis Death Rate	1.84
Infectious Diseases Death Rate	1.9
Infantile Mortality	77.

PHYSICAL FEATURES OF THE AREA.

The City of Cork is situated on the River Lee, fifteen miles from the mouth of the river. Its area is 2,681 acres—about three and a half square miles; the population in 1926 being 78,490, with a density of 28.6 to the acre

The geological character varies at different sides of the river, the North side consisting of red sandstone of a coarse structure. The Southern hill of the Lee consists of a fine limestone, whilst the central portion is almost entirely artificial, and consists of six feet of filled-in material, with ten feet of slob below that, and then gravel overlying old red sand stone.

METEOROLOGY.

I am indebted to Capt. J. J. Lalor, University College, for the following particulars concerning the weather conditions during the year, and more especially for the trouble which he has gone to bring up to date the Tables which follow. This entailed a great deal of work since the University records so far back as 1922 had to be consulted for this purpose. The rainfall for the year was 47.91 inches, which must be regarded as one of exceptional severity as it was only exceeded on four previous occasions since 1901, namely, 1903 (52.77 ins.), 1920 (48.01 ins.), 1924 (51.56 ins.) and 1928 (55.66 ins.) The following table sets forth the rainfall from 1901:

Table I.

Rainfall in inches for each quarter and for each year, 1901/1930.

Year	I.	II.	III.	IV.	Total.
1901	10.07	7.62	10.75	10.12	38.56
1902	9.29	7.80	7.31	12.88	37.28
1903	16.89	8.80	14.95	12.13	52.77
1904	13.63	5.71	10.41	7.47	37.22
1905	11.70	6.59	9.82	9.14	37.25
1906	9.46	5.76	5.58	9.03	29.83
1907	4.06	10.10	7.40	16.02	37.58
1908	7.67	5.28	10.16	9.53	32.64
1909	7.61	9.94	2.62	9.74	29.91
1910	10.70	7.24	8.64	11.98	38.56
1911	5.94	6.89	7.87	18.47	39.17
1912	13.46	7.07	9.30	7.05	36.88
1913	13.92	10.32	7.73	12.49	44.46
*1914	13.72	3.60	9.85	15.20	42.42
1915	11.62	6.27	9.26	15.68	42.83
1916	8.68	9.19	7.37	21.11	46.35
1917	8.75	6.93	9.40	7.25	32.33
1918	14.75	5.59	13.37	13.73	47.44
1919	10.78	7.11	6.77	6.97	31.63
1920	11.75	14.12	8.90	13.24	48.01
1921	8.04	2.22	8.71	9.90	28.87
1922	13.08	5.45	10.57	8.15	37.25
1923	14.41	5.38	10.71	10.54	41.04
1924	12.32	9.76	11.82	17.66	51.56
1925	10.31	10.49	8.43	11.92	41.15
1926	15.42	8.19	4.68	9.55	37.84
1927	12.20	6.16	11.45	16.06	45.87
1928	16.14	13.86	8.31	17.35	55.66
1929	11.28	6.72	7.27	20.91	46.18
1930	14.98	5.91	12.67	14.35	47.91

*Since 1914 the returns in Tables I., II., III. and IV. are taken from observations made at University College, Cork.

TABLE 4.—Temperature at Cork (in the Shade) for 48 years ending 1930.

Year	January	February	March	April	May	June	July	August	September	October	Nov.	Dec.	Mean Temperature of Year
	Max. Min. Mean Degrees	Max. Min. Mean Degrees	Max. Min. Mean Degrees	Max. Min. Mean Degrees	Max. Min. Mean Degrees	Max. Min. Mean Degrees	Max. Min. Mean Degrees	Max. Min. Mean Degrees	Max. Min. Mean Degrees	Max. Min. Mean Degrees	Max. Min. Mean Degrees	Max. Min. Mean Degrees	
1883	54-32-41.7	54-28-42.0	55-25-41.0	66-32-48.0	69-35-50.7	69-44-57.7	70-47-58.5	71-47-60.0	65-41-56.5	61-35-52.0	57-33-44.8	55-27-42.0	49.6
1884	55-31-45.5	54-31-46.5	54-30-45-5	57-34-48.5	68-37-55.5	73-40-59.0	72-45-61.5	74-44-62-2	71-45-58.5	60-34-52.2	60-28-45.2	55-28-41.3	51.8
1885	54-27-41.7	50-27-43.5	54-30-43.5	62-30-48.2	61-34-52.0	72-42-59.2	80-43-62.0	74-46-60.5	65-36-55.2	57-35-46.7	58-31-46.7	54-25-39.5	49.9
1886	52-23-38.0	52-28-41.5	57-25-41.5	65-32-46-7	65-33-50.5	76-45-57.7	79-44-59.5	76-45-60.5	65-39-56.5	64-37-51.5	58-29-45.0	50-22-39.0	49.0
1887	54-30-43.0	54-27-43.5	58-25-42.0	62-26-44.5	70-35-52.5	81-47-62.5	80-47-64.2	76-42-60.7	69-39-55.0	61-28-48.2	54-24-42.0	55-25-39.7	50.0
1888	54-26-43.0	52-26-38.2	56-26-40.7	59-28-46.5	68-39-53.2	73-39-57.0	70-40-57.5	74-42-60.0	66-37-55.5	63-31-50.5	58-27-48.0	56-28-44.7	49.6
1889	58-26-43.0	57-27-42.2	59-29-44.7	58-32-46.7	68-40-48.0	77-46-58.0	77-45-60.0	72-43-58.7	70-38-57.2	59-32-48.2	60-29-48.2	56-29-44.2	49.9
1890	55-29-44.0	54-29-42.5	58-28-45.2	61-29-48.0	70-39-53.0	73-45-58.0	72-43-58.4	72-40-58.0	75-42-50.2	66-34-53.0	60-24-44.6	52-25-39.0	50.3
1891	53-23-40.3	56-31-45.7	61-22-42.1	60-31-46.9	73-34-50.0	78-40-58.6	75-44-59.0	73-40-58.0	71-39-56-5	61-29-48.5	53-28.42.6	55-26-44.0	49.4
1892	55-20-39.2	55-25-42.3	57-24-40.0	62-27-47.2	66-37-53.1	73-39-56.2	73-44-59.0	70-44-60.0	68-37-55.0	56:28-45.0	56-31-47.2	53-27-42.7	49.7
1893	53-21-40.5	53-24-42.5	60-34-47.5	67-31-51.5	69-43-56.5	80-46-59.8	74-46-61.2	77-45-61.7	71-33-55.2	63-31-49j0	59-30-43.0	53-26-42.5	50.9
1894	53-11-39.5	56-28-44.6	57-33-44.8	62-37-49.0	67-34-50.0	71-38-57.0	72-45-69.0	71-44-57.5	66-36-53.5	66-33-49.5	59-28-46.0	54-29-44.5	49.6
1895	47-23-36.5	48-22-34.5	63-27-44.0	61-31-48.2	70-33-53.0	74-40-58.7	70-44-58.7	70-43-59.0	71-46-58.9	62-28-46.0	56-30-45.0	54-26-42.5	48.7
1896	53-26-43.0	55-32-45.2	56-31-46.5	65-34-50.0	74-33-56.2	82-47-60.5	75-42-60.0	73-41-57.5	68-41-55.0	65-30-43.2	53-29-42.0	53-23-40.0	49.9
1897	50-22-37.5	56-32-46.0	55-31-44.0	58-29-46.0	70-35-51.0	75-41-59.0	77-43-61.0	80-45-59.5	67-38-53.2	61-37-52.2	58-32-47.2	53-29-44.0	50.1
1898	55-32-45.8	54-26-41.5	58-28-41.0	60-31-47.7	67-34-51.0	74-39-56.8	78-44-59.5	73-46-69.5	72-40-58.7	64-34-51.3	59-30-44.0	55-27-45.4	50.3
1899	53-26-40.1	52-29-43.0	64-22-43.0	63-29-46.6	65-34-50.6	78-41-59.5	76-45-60.0	76-46-62.3	71-31-54-1	60-29-47.9	55-39-47.2	51-24-40.0	49.5
1900	54-27-39.5	52-14-35.4	51-25-38.6	65-33-47.8	68-36-50.7	75-42-56.8	75-45-60.1	71-42-57.0	67-38-55.1	63-32-48.1	57-29-41-7	52-26-42.3	47.9
1901	49-24-37.8	49-22-35.8	51-24-38.9	59-39-45.0	68-34-51.9	72-37-54.2	76-46-60.2	75-41-57.5	67-39-54.0	61-31-47.0	54-19-41.2	51-26-37.5	46.8
1902	50-25-40.6	52-19-36.6	57-30-44.0	57-29-44.0	67-31-47.3	74-38-53.1	74-40-56.0	68-40-56.2	68-36-53.6	62-34-47.4	55-30-43.5	52-25-39.0	46.8
1903	50-22-39.5	52-29-42.7	52-29-41.1	57-27-43.7	69-36-50.4	70-35-54.0	74-43-56.6	68-40-54.3	64-36-52.4	60-28-46.2	55-24-41.0	48-22-37.0	46.4
1904	49-27-38.5	49-24-37.2	52-25-39.1	60-32-44.4	65-32-48.6	69-49-54.2	73-40-57.3	69-41-56.4	63-38-52.5	63-35-50.2	57-25-43.5	52-28-43.0	47.4
1905	51-29-42.0	55-23-41.6	53-30-42.6	58-33-46.4	68-36-52.6	75-42-58.0	76-45-41.5	70-42-55.5	68-39-53.6	62-26-45.0	52-23-39.0	50-30-43.3	48.3
1906	50-28-41.1	47-25-38.0	58-30-42.6	59-29-44.3	64-33-49.7	75-42-57.8	74-44-59.0	73-44-59.8	71-40-55.0	63-29-49.0	55-29-44.0	53-20-39.0	48.4
1907	49-18-39.6	52-25-38.4	57-32-45.8	64-30-45.4	65-35-48.7	68-49-53.5	78-41-58.6	68-43-57.0	68-38-57.0	60-28-45.9	52-28-49.8	49-27-39.5	47.5
1908	52-23-38.5	53-31-43.0	52-29-40.4	56-26-43.4	68-37-52.0	71-40-55.7	80-46-59.5	74-44-58.2	67-38-53.5	64-33-53.0	56-29-45.7	51-30-41.1	49.0
1909	51-28-40.3	52-22-39.6	56-23-40.6	61-31-46.8	66-33-51.0	69-41-54.0	71-45-58.6	79-43-59.7	65-37-52.3	64-26-49.0	55-20-38.2	50-24-38.3	47.4
1910	50-25-38.5	53-27-39.0	55-30-41.0	60-29-43.9	68-34-51.4	66-44-55.5	70-45-57.5	69-46-57.0	68-37-54.5	62-34-49.0	53.24-39.0	50-28-41.5	47.3
1911	50-27-39.2	53-22-39.7	56-29-40.3	59-27-40.9	70-37-52.2	72-45-56.7	79-44-61.0	73-45-60.2	73-39-54.3	57-31-48.0	53-26-39.9	49-27-39.3	48.0
1912	50-27-40.8	50-32-40.0	57-32-41.8	61-32-47.0	64-36-51.2	66-32-52.9	74-44-55.7	61-36-51.3	68-36-53.5	61-31-50.1	59-33-49.2	54-30-44.3	48.1
1913	52-27-40.6	54-32-43.6	55-34-45.0	59-29-44.7	64-36-49.5	75-38-54.0	74-47.55.9	74-40-58.8	72-44-57.6	61-32-51.5	60-34-48.9	56-33-45.6	49.6
1914	54-43-48.5	55-50-53.0	55-50-52.4	60-53-56.9	62-55-58.2	70-59-64.4	69-53-64.8	67-63-64.6	66-60-62.6	62-55-58.4	58-50-53.4	53-46-50.0	47.2
1915	50-37-43.5	45-25-35.0	58-35-46.5	50-35-42.5	62-40-51.0	64-40-52.0	62-42-52.0	65-43-54.0	62-40-51.0	55-37-46.0	48-28-38.0	40-28-34.0	44.9
1916	50-36-43.3	47-30-39.1	45-30-37.8	49-36-42.6	60-34-47.4	55-40-47.8	66-40-53.4	65-49-57.7	60-40-50.0	56-36-46.4	47-32-40.4	40-24-32.5	44.8
1917	52-22-36.0	50-24-35.0	52-28-39.25	59-30-41.5	70-32-50.25	66-40-52.25	68-40-55.4	70-46-56.12	66-26-51.25	566-30-4.8	58-30-44.5	56-26-38.4	45.7
1918	50-22-36.0	54-32-43.0	56-26-41.0	64-32-48.0	67-33-50.0	76-36-56.0	76-40-58.0	74-40-57.0	64-36-50.0	62-30-46.0	54-26-40.0	54-26-40.0	47.0
1919	54-24-36.0	50-26-39.0	50-24-37.8	56-30-43.2	72-34-51.2	68-36-51.0	74-40-56.0	80-40-57.5	64-34-49.7	62-36-44.6	56-14-34.5	54-28-41.0	46.0
1920	52-30-40.0	50-30-39.8	50-30-41.3	56-36-46.3	66-28-46.3	68-34-53.7	66-42-53-5	66-40-53.2	68-32-51.2	60-36-48.5	56-24-41.6	50-20-36.0	45.9
1921	60-25-44.7	50-24-36.2	50-24-37.5	58-26-41.5	70-34-48.4	76-32-55.0	80-40-60.0	74-38-54.2	64-32-48.2	62-28-47.4	46-20-39.7	50-28-41.2	46.2
1922	56-20-49.1	48-24-37.2	46-24-34.5	48-22-34.8	80-30-61.0	74-40-54.0	72-38-67.2	72-36-54.0	66-36-52-3	60-20-56.0	66-30-44.0	54-26-39.2	48.6
1923	54-27-43.4	55-29-43.6	56-30-45.1	58-31-46.2	65-33-49.3	65-33-49.3	79-48-62.2	78-42-59.6	69-37-53.4	61-30-49.5	58-20-38.8	53-25-43.0	49.2
1924	53-29-43.8	51-26-41.4	56-25-42.5	62-27-46.0	65-35-51-5	70-41-56.7	68-42-57.9	70-40-57-8	71-40-54.4	64-37-50.8	59-29-46-0	56-33-46.0	49.6
1925	55-31-44.4	55-28-41.8	60-29-43.8	57-30-45.6	62-34-50.3	81-44-59.5	75-45-60.2	74-43-60.2	68-35-53.3	69-32-52.5	59-24-41.2	56-21-39.8	49.4
1926	53-28-43.1	57-32-46.5	61-31-45.7	63-31-49.8	64-33-51.1	72-39-55.5	83-45-63.3	75-46-61.8	72-37-58.2	74-25-48.3	57-27-42.3	55-21-41.5	50.6
1927	60-28-42.3	57-26-44.1	57-27-45.9	65-29-48.4	72-36-53.5	70-38-54.5	74-50-61.1	76-46-59.9	70-36-54.5	65-35-52.2	61-23-43.5	52-26-40.8	50.1
1928	55-30-44.1	57-33-45.6	57-27-44.4	64-30-46.2	75-37-54.0	69-40-55.8	78-43-60.6	72-41-58.8	70-34-54.7	65-32-50.8	58-27-46.5	55-28-41.9	50.3
1929	54-23-39.8	56-28-43.5	69-26-46.3	65-33-47.9	75-31-52.4	71-41-56.7	75-42-59.8	72-44-59.6	74-39-58.9	63-31-49.5	59-24-44.8	56-27-42.7	50.2
1930	53-26-41.3	52-24-37.7	57-26-43.2	66-30-47.4	68-36-53.0	76-40-58.3	78-45-59.3	69-42-57.5	70-40-56.5	61-35-51.6	60-27-44.6	54-29-43.3	49.5

The mean annual temperature for Cork for the past 40 years was 48.5 degrees in the shade. The mean temperature for 1930 was 49.5°F. The highest was 78°F. on the 8th July; the lowest 24°F. on the 17th and 22nd February. The warmest day in 1930 was on the 8th July with a maximum shade temperature of 78°F., and the warmest night was 10th July, with a mininum shade temperature of 60°F. The coldest day in the year was 2nd February with a maximum shade temperature of 38°F., and the coldest nights were the 17th and 22nd February, as stated above.

TABLE 3.

Mean Temperature (°F.) for each quarter and for each year from 1901 to 1930, inclusive.

Year.	I.	II.	III.	IV.	Total
	°	°	°	°	°
1901	37.5	50.4	57.2	41.9	46.8
1902	40.4	48.1	55.3	43.3	46.8
1903	41.1	49.4	54.4	41.4	46.6
1904	38.3	49.1	55.4	45.6	47.1
1905	42.1	52.4	56.9	42.4	48.4
1906	40.6	50.6	57.9	44.0	48.3
1907	41.3	49.1	57.5	42.1	47.5
1908	40.6	50.4	57.0	46.6	48.6
1909	40.2	50.6	56.9	41.8	47.5
1910	39.5	50.3	56.3	43.2	47.4
1911	39.7	51.3	58.5	42.4	47.5
1912	40.9	50.4	53.5	47.9	48.2
1913	43.0	49.4	57.4	48.7	49.6
1914	40.3	51.4	56.7	43.5	48.1
1915	38.3	49.2	52.7	39.2	44.9
1916	40.0	45.9	53.7	39.7	44.8
1917	36.7	48.1	54.2	43.9	45.7
1918	40.0	51.3	55.0	42.0	47.0
1919	37.6	48.5	54.4	40.0	45.5
1920	40.3	48.9	52.6	42.0	45.9
1921	39.6	48.3	54.3	42.7	46.2
1922	40.2	49.9	57.8	46.4	48.6
1923	44.0	50.7	58.4	43.8	49.2
1924	42.6	51.4	56.7	47.6	49.6
1925	43.3	51.8	57.9	44.5	49.4
1926	45.1	52.1	61.1	44.0	50.6
1927	44.1	52.2	58.5	45.5	50.1
1928	44.7	52.0	58.0	46.4	50.3
1929	43.2	52.3	59.4	45.7	50.1
1930	40.7	52.9	57.8	46.5	49.5

BAROMETER.

The mean reading for 1930 was 29.90; the highest, 30.74 on the 11th and 12th November; the lowest, 28.70, on the 31st January. (Observations made at 9 a.m. only, G.M.T.)

VITAL STATISTICS.

1.—POPULATION.

The population of the City, according to the figures of the 1926 census, was 78,490. This may be regarded as an approximately accurate estimate of the population at the present time as the variation from decade to decade has been very slight indeed.

2.—BIRTHS.

The number of births recorded during the year was 1,998, which is equivalent to a birth rate of 25.45 The corresponding figure for last year was 20.9. The figure for 1930 was the largest for the past six years, as is shown by the following figures :

BIRTH RATE—10 Years ending 1930.

1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
24.6	24.2	26.2	25.5	23.8	21.5	21.7	21.7	20.9	25.4

The large increase in the birth rate for the year 1930 is probably related to the temporary wave of prosperity which marked the economic state of the city during the previous year. The figures for the county as a whole are not yet available for 1930. During the year 1929 the birth rate for Saorstat Eireann was 19.17. The corresponding figure for England and Wales was 16.3. There were 29 illegitimate births registered in the area during the year. This is equivalent to a rate of 0.3 per 1,000.

TABLE 5.

Birth Rates for Cork City and Saorstat Eireann from 1881 to 1930.

Year	Cork	S.E.	Year	Cork	S.E.
1881	27.7	24.0	1906	27.5	22.8
1882	28.2	23.8	1907	25.6	22.4
1883	27.0	23.4	1908	27.3	22.7
1884	27.4	23.5	1909	26.3	22.9
1885	25.6	23.1	1910	25.8	22.8
1886	25.4	22.7	1911	26.0	22.8
1887	25.5	22.5	1912	24.8	22.7
1888	25.7	22.1	1913	24.2	22.6
1889	25.2	22.0	1914	24.3	22.3
1890	25.0	21.6	1915	23.2	22.0
1891	26.9	22.3	1916	22.6	21.1
1892	24.6	21.7	1917	20.2	20.0
1893	27.8	22.1	1918	20.8	19.9
1894	27.4	22.1	1919	23.8	19.9
1895	28.9	22.3	1920	28.3	21.6
1896	29.2	22.7	1921	24.6	19.7
1897	27.5	22.5	1922	24.2	19.5
1898	28.7	22.3	1923	26.2	20.5
1899	27.3	22.1	1924	25.5	21.0
1900	25.8	21.8	1925	23.8	20.8
1901	25.6	21.8	1926	21.5	20.6
1902	26.2	22.2	1927	21.7	20.3
1903	27.1	22.1	1928	21.7	20.1
1904	27.4	22.7	1929	20.9	19.8
1905	27.6	22.6	1930	25.4	19.8

3.—DEATHS.

The number of deaths registered during the year was 1,264, which is equivalent to a rate of 16.1 per 1,000 of the population. The corresponding figure in 1929 was 16.7. These figures represent crude death rates. The standardised rate is based on the age and sex constitution of Saorstat Eireann as a whole, at the Census of 1926. The figures on this basis for 1930 are not yet available. In 1929 the crude death rate for Cork City was 16.7 ; the standardised rate for the same year was 19.98 The principal causes of death were (in order of importance) as follows : Heart- Disease, (234 deaths), Pulmonary Tuberculosis (145), Cancer (90), Pneumonia (80), Cerebral Haemorrhage (52), Nephritis (27). The following table shows the death rates (crude) for the past ten years :—

DEATH RATES, Cork City, 1921/1930.

1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
15.4	18.0	14.0	17.8	15.5	17.3	14.7	15.0	16.7	16.1

Infectious Diseases Death rate.—The numbers of deaths from infectious diseases per 1,000 of the population during 1930 was 1.82, and is the highest for the city since the year 1918. It is also the highest for the country as a whole during the year. The main contributing factor was undoubtedly the severe epidemic of diphtheria which visited the city during the year and which accounted for 64 deaths. This factor is dealt with more fully in connection with infectious diseases.

Infantile Mortality.—This is expressed as the number of deaths of children under one year per 1,000 births occuring during the year. The figure for 1930 was 77, representing 155 deaths. The general trend of infantile mortality is distinctly downward. In 1891 it was 155 per 1,000 births, and the figure has steadily declined since that period.

Maternal Mortality represents the number of deaths of women during pregnancy and childbirth per 1,000 births. The rate for Cork for the year was 1.83. This figure is considerably lower than that for the country as a whole, which was 4.24. There were no deaths during the year from puerperal sepsis. Four deaths were registered which were classed as " other accidents or diseases of pregnancy."

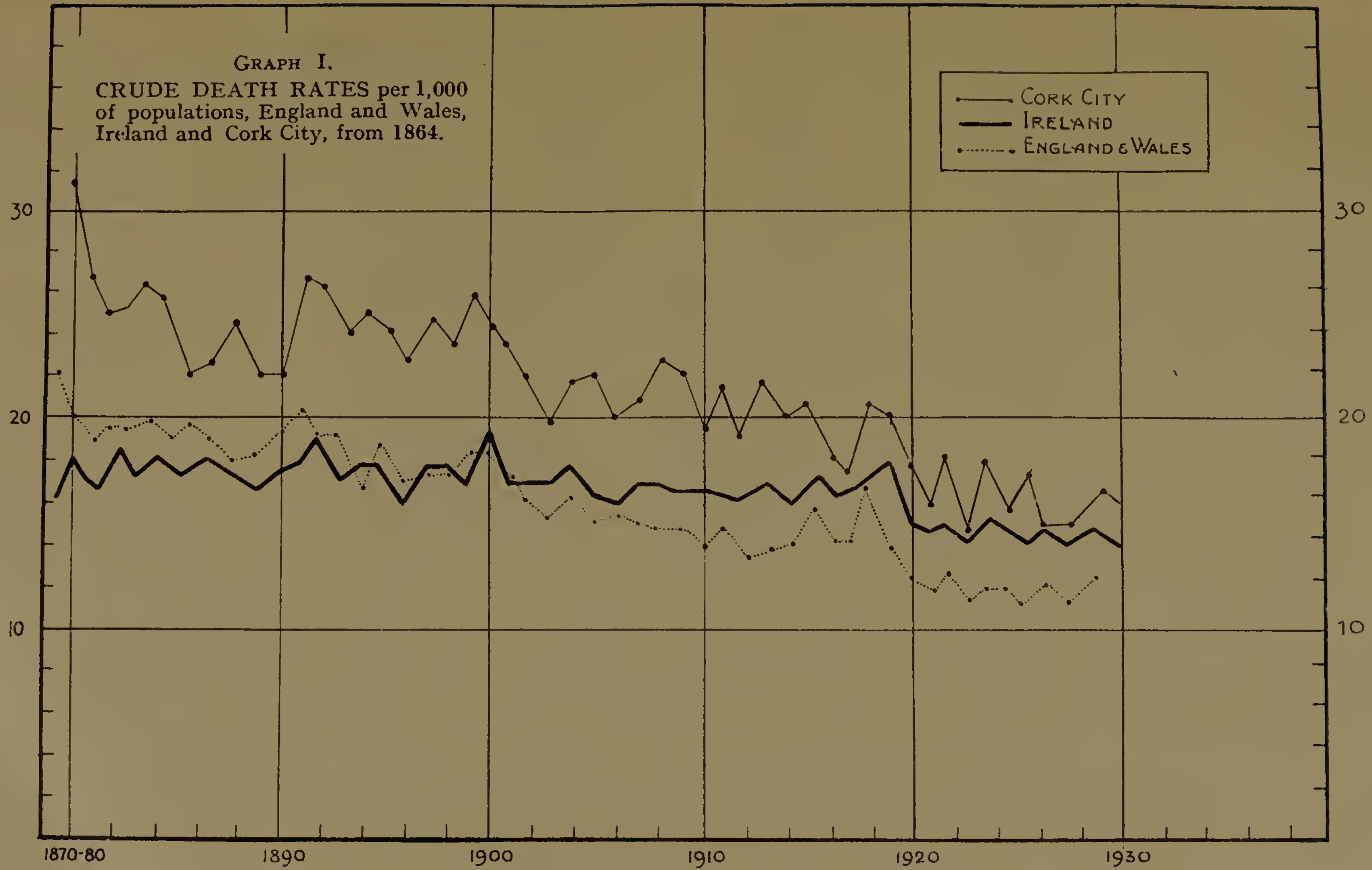
Phthisis Death Rate.—The deaths from pulmonary tuberculosis numbered 114, which was equivalent to a rate of 1.45 per 1,000.

Table 6 shows the death rates per 1,000 persons living in Cork City, Saorstat Eireann and England and Wales for the 50 years ended 1930. The figures set forth do not serve as an estimate of the relative healthiness of the communities compared as they are based on crude death rates. In order to compare such conditions the figures would have to be based on standardised death rates. Standardised death rates based on age and sex constitutions have been drawn up by the Registrar General for Saorstat Eireann in his annual report for the year 1929 based upon the distribution of the population according to the census of 1926. Taking 14.6 as the standard death rate for Sarostat Eireann in 1929, then the standard death rate for England and Wales becomes 15.37. while that for Cork City becomes 19.98 instead of 16.7. The table, however, indicates that the general trend of the death rate is distinctly downward and that there has been a marked annual saving of life in recent years as compared with the earlier period.

This tendency is shown more clearly in Graph 1 in which the figure for crude death rates are set out. It will be noted in this diagram that the death rate for the city has fallen from 30.8 (the mean for the period 1870—1880) to 16.1 for 1929. This indicates a very great improvement in the sanitary environment of the people as well as an improvement in their standards of living.

TABLE 6.—Crude Death Rates per 1,000 living for Cork City, Saorstat Eireann and England and Wales, 1881—1930.

Year	Cork	S.E.	E. & W.	Year	Cork	S.E.	E. & W.
1881	26.8	17.1	18.9	1906	20.2	16.2	15.5
1882	24.7	16.9	19.6	1907	20.6	17.0	15.1
1883	24.9	18.6	19.6	1908	22.2	17.1	14.8
1884	26.7	17.4	19.7	1909	22.1	16.8	14.6
1885	26.2	18.0	19.2	1910	19.3	16.6	13.5
1886	22.1	17.4	19.5				
1887	22.4	17.9	19.1	1911	21.2	16.3	14.6
1888	24.1	17.4	18.1	1912	19.1	16.2	13.4
1889	22.3	16.9	18.2	1913	21.5	16.8	13.8
1890	22.2	17.6	19.5	1914	20.2	16.1	14.0
				1915	20.7	17.5	15.7
1891	26.9	17.6	20.2	1916	18.2	16.5	14.3
1892	26.4	18.7	19.0	1917	17.47	16.9	14.2
1893	24.5	17.3	19.2	1918	20.48	17.5	17.3
1894	24.9	17.7	16.6	1919	20.22	17.9	14.0
1895	23.9	17.7	18.7	1920	17.5	14.7	12.4
1896	22.6	15.9	17.1				
1897	24.7	17.8	17.4	1921	15.4	14.3	12.1
1898	23.7	17.7	17.5	1922	18.0	14.7	12.8
1899	26.3	17.0	18.2	1923	14.0	14.0	11.6
1900	24.2	19.1	18.2	1924	17.8	15.0	12.2
				1925	15.5	14.7	12.2
1901	23.0	17.1	16.9	1926	17.3	14.0	11.6
1902	21.5	17.0	16.3	1927	14.7	14.8	12.3
1903	19.4	17.0	15.5	1928	15.0	14.2	11.7
1904	21.6	17.6	16.3	1929	16.7	14.6	12.7
1905	21.7	16.4	15.3	1930	16.1	14.1	—



GRAPH I.

CRUDE DEATH RATES per 1,000 of populations, England and Wales, Ireland and Cork City, from 1864.

Table 7.—Showing for the year 1930, in the several Registrar's Districts, the annual Rate per 1,000 of the population of the respective Districts, etc.

YEAR (53 Weeks ended Saturday 3rd January, 1931.

Registrar's Districts; Etc	Estimated Population middle of 1930.*	Deaths: Annual Rate of Mortality per 1;000 Living represented by Deaths: From All Causes	Deaths: Annual Rate of Mortality per 1;000 Living represented by Deaths: From Principal Epidemic Diseases	Total deaths	Ages at Death: Under 1 year	1 and under 2	2 and under 3	5 and under 15	15 and under 25	25 and under 45	45 and under 65	65 and upwards.	Deaths from: Enteric Fever	Typhus	Small-pox	Measles	Scarlet Fever	Whooping Cough	Diphtheria	Dysentery	Influenza	Tuberculosis: Pulmonary	Tuberculosis: Other Forms	Cancer	Diseases of the Respirat'ry System: Pneumonia	Diseases of the Respirat'ry System: Other	Diarrhœa & Enteritis of Children under 2 years	Violence	Other Causes	Inquest Cases	In Institution: Hospitals, Prisons & Lunatic Asylums.	In Institution: Workhouse Hospitals or County Homes	Number of Uncertified Deaths
COUNTY BOROUGH OF CORK																																	
Cork Co. Boro' Registrar's Dists. Cork Urban No. 1 ...	12,837	12.6	0.9	165	7	3	1	12	4	20	40	78	—	—	—	2	1	—	8	—	1	14	3	11	8	11	1	2	103	2	31	18	5
,, 2 ...	11.208	15.2	2.3	174	24	15	11	13	10	19	38	44	—	—	—	4	1	—	14	—	1	17	3	12	18	12	7	3	82	7	34	18	4
,, 3 ...	10,971	16.3	2.7	182	25	10	13	7	13	31	46	37	—	—	—	6	2	1	13	—	—	25	1	11	9	17	8	2	87	1	34	51	3
,, 4 ...	8,642	22.7	3.4	200	22	12	13	15	12	24	60	42	—	—	—	2	3	—	14	1	2	13	5	7	10	18	9	6	109	7	41	75	5
,, 5 ...	5.613	24.5	2.1	140	20	5	12	2	4	11	52	34	—	—	—	—	—	2	6	—	—	5	3	10	6	10	4	2	92	5	22	47	1
,, 6 ...	12.005	18.1	1.3	222	21	11	12	8	11	35	55	69	—	—	—	3	1	1	7	—	1	23	6	28	18	14	4	3	113	4	63	30	4
,, 7 ...	17,214	15.8	1.3	278	33	13	18	12	14	27	66	95	—	—	—	5	—	1	12	—	—	20	4	17	19	34	4	4	158	10	43	72	5
Total County Boro . h of Cork	78,490	17.0	1.9	1,361	152	69	80	69	68	167	357	399	—	—	—	22	8	5	74	1	5	117	25	96	88	116	37	22	744	36	208	311	27

TABLE 8.—Showing the number of deaths from the principal epidemic diseases during the past ten years.

Year	Small Pox	Typhus Fever	Typhoid Fever	Simple Contd. Fever	Scarlatina	Puerperal Fever	Membraneous Croup	Diphtheria	Measles	Diarrhœa	Whooping Cough.
1921 ...	—	1	4	—	—	—	1	56	—	1	1
1922 ...	—	—	2	—	—	—	1	42	38	—	—
1923 ...	—	1	1	—	—	—	1	23	—	30	
1924 ...	—	—	2	—	—	2	1	12	—	11	81
1925 ...	—	—	5	1	2	1	—	6	—	45	2
1926 ...	—	1	2	—	6	2	1	18	75	53	32
1927 ...	—	—	2	—	6	5	2	7	1	24	—
1928 ...	—	—	2	—	4	3	1	21	—	26	8
1929 ...	—	1	1	—	3	—	1	32	12	24	30
1930 ...	—	—	—	—	6	1	1	64	26	31	4

TABLE 9.—INFANTILE DEATH RATE.

Year	Births	Deaths under 1 Year	Deaths per 1000 Births.
1878	2546	350	137
1879	2707	319	117
1880	2620	376	143
1881	2167	271	124
1882	2212	282	127
1883	2161	236	109
1884	2199	253	110
1885	2054	247	120
1886	2037	225	110
1887	2042	252	123
1888	2058	288	139
1889	2023	253	125
1890	2005	214	106
1891	2024	281	138
1892	1978	297	150
1893	2092	268	132
1894	2062	310	150
1895	2179	287	131
1896	2144	229	106
1897	2073	316	152
1898	2160	285	131
1899	2060	276	133
1900	1944	235	120
1901	1942	272	139
1902	2031	258	127
1903	2066	232	112
1904	2089	249	118
1905	2099	276	131
1906	2094	279	133
1907	1946	254	139
1908	2084	281	134
1909	2000	251	125
1910	1965	189	96
1911	1992	277	139
1912	1903	204	107
1913	1853	253	136
1914	1897	226	119
1915	1778	235	132
1916	1732	182	105
1917	1552	169	108
1918	1559	189	118
1919	1825	183	100
1920	2169	173	79
1921	1887	144	76
1922	1853	173	93
1923	2007	133	66
1924	1990	175	87
1925	1827	136	74
1926	1687	220	130
1927	1701	148	87
1928	1764	135	76
1929	1816	156	85
1930	1898	155	77

Table 10.

Summary of Births and Deaths Registered during the years 1878 to 1930, inclusive, in the Cork Urban Sanitary District (exclusive of Deaths in Public Institutions of persons admitted from other localities), with the number of Deaths from some of the principal cause

Year	Area in statute Acres	Census Statistics: Population	Census Statistics: Persons to an acre	Rate per 1,000 persons represented by: Births	Rate per 1,000 persons represented by: Deaths from All Causes	Rate per 1,000 persons represented by: Deaths from Pepl. Zymotic Diseases	NUMBER REGISTERED. BIRTHS	DEATHS: Total Number	DEATHS: Under 1 year of age	DEATHS: At 65 years & upwards	Number caused by: Smallpox	Measles	Scarlet Fever	Typhus	Whooping Cough	Diphtheria	Simple, contd. & Ill-defined Fever	Fever	Enteric Fever	Diarrhœa	Influenza	Pneumonia	Tuberculous Diseases: Pulmonary	Tuberculous Diseases: Other forms	Cancer	Diseases of Respiratory System	Violence	Inquest Cases	No. in Public Institutions	Number of Uncertified
1878...				31.7	27.0	...	2,546	2,464	350	681	...	61	1	...	59	1	...	58	...	75	...	...	...	...	...	...	23	87	863	...
1879...				33.5	29.0	3.8	2,707	2,689	319	711	...	49	65	...	19	2	...	71	...	48	...	...	...	...	...	...	30	113	977	...
1880...				28.5	30.8	5.9	2,620	2,837	376	624	...	73	204	...	47	13	...	120	...	86	...	...	289	...	...	448	23	99	1026	...
1881...				27.7	26.8	4.1	2,167	2,101	271	611	...	36	30	88	61	4	13	...	4	87	...	...	237	...	...	486	14	82	673	...
1882...				28.2	24.7	2.3	2,212	1,935	282	490	...	20	8	54	25	5	8	...	4	55	...	...	274	...	...	488	11	77	574	...
1883...				27.0	24.9	2.0	2,161	1,993	236	572	...	35	8	46	5	10	6	...	11	38	...	...	271	...	...	552	9	50	646	...
1884...				27.4	26.7	2.8	2,199	2,139	253	553	...	41	27	37	45	6	4	...	13	51	...	...	292	...	...	584	12	50	671	...
1885...				25.6	26.2	2.3	2.054	2,098	247	614	...	6	48	21	55	5	3	...	9	35	...	...	287	...	...	484	7	36	587	...
1886...	2,681	80,124	35.4	25.4	22.1	2.1	2.037	1,769	225	430	...	12	30	17	5	8	1	...	42	50	...	...	263	...	...	239	11	40	525	...
1887...				25.5	22.4	1.8	2,042	1,792	252	490	...	34	1	12	6	2	...	...	20	67	...	...	236	...	...	378	15	43	490	...
1888...				25.7	24.1	3.5	2.058	1,934	288	501	...	146	6	21	49	18	1	...	9	30	...	...	231	...	...	452	7	32	499	...
1889...				25.2	22.3	1.9	2,023	1,786	253	497	...	1	10	5	88	7	4	...	9	32	...	...	278	...	...	351	8	34	433	...
1890...				25.0	22.2	1.0	2,005	1,778	214	571	...	1	5	7	14	8	1	...	12	29	...	...	295	...	...	387	20	43	479	...
1891...				26.9	26.9	1.4	2,024	2,025	281	630	...	...	4	5	29	11	3	...	17	34	...	...	295	...	...	531	15	35	557	...
1892...				24.6	26.4	1.9	1,978	1,988	297	560	...	40	...	23	42	3	4	...	17	17	...	...	303	...	...	511	17	65	682	...
1893...				27.8	24.5	1.3	2,092	1,844	268	517	...	6	2	7	14	3	1	...	14	51	...	...	314	...	...	395	15	58	596	...
1894...				27.4	24.9	1.8	2,062	1,874	310	517	...	51	15	2	16	4	3	...	13	32	...	...	296	...	...	426	31	63	609	...
1895...	,,	75,345	33.3	28.9	23.9	1.6	2,179	1,798	287	494	...	1	3	8	65	2	...	...	16	28	...	...	261	...	...	348	24	68	657	...
1896...				29.2	22.6	1.2	2,144	1,706	229	477	...	2	2	7	16	1	...	...	24	40	...	...	299	...	...	295	14	66	619	...
1897...				27.5	24.7	2.7	2,073	1,858	316	452	...	75	1	3	59	10	...	...	9	47	...	...	260	...	...	368	22	64	680	...
1898...				28.7	23.7	1.9	2,160	1,787	285	493	...	3	1	11	25	4	...	...	13	86	...	...	283	...	...	303	14	75	640	...
1899...				27.3	26.3	2.8	2,060	1,980	276	525	...	34	1	6	33	5	...	...	8	121	...	...	320	...	...	341	9	79	749	...
1900...				25.8	24.2	1.4	1,944	1,821	235	496	...	9	22	4	1	2	...	...	5	59	...	...	281	...	...	354	7	51	597	...
1901...				25.6	23.0	1.9	1,942	1,745	272	440	...	3	17	2	36	11	1	...	5	73	...	...	289	...	...	284	13	54	558	...
1902...				26.2	21.5	1.3	2,031	1,667	258	430	...	21	3	...	30	4	1	...	5	34	...	...	287	...	...	279	25	65	564	...
1903...				27.1	19.4	1.3	2.066	1,476	232	336	...	2	4	...	44	4	...	...	5	37	...	...	279	...	...	231	19	46	518	...
1904...				27.4	21.6	1.0	2,089	1,642	249	408	...	8	1	1	27	6	1	...	8	27	...	...	352	...	...	275	39	75	563	...
1905...				27.6	21.7	1.0	2,099	1,650	276	468	...	14	...	2	...	7	1	...	8	47	...	103	294	...	...	221	18	50	605	...
1906...	,,	76,122	33.6	27.5	20.2	1.7	2,094	1,535	279	406	...	...		4	14	11	1	...	5	92	...	65	261	81	62	177	20	54	593	...
1907...				25.6	20.6	1.5	1,946	1,570	254	427	...	...	2	6	52	5	1	...	4	48	...	77	278	84	77	178	14	53	609	84
1908...				27.3	22.3	1.9	2,084	1,700	281	472	...	13	6	6	13	9	...	...	16	79	...	62	245	93	59	233	12	53	651	83
1909...				26.3	22.1	2.3	2,000	1,680	251	457	...	3	15	5	72	11	1	...	15	54	...	106	264	78	62	170	13	75	673	91
1910...				25.8	19.3	0.9	1,965	1,469	189	489	...	...	2	3	7	11	...	...	13	34	...	71	233	75	73	165	25	50	630	77
1911...				26.0	21.2	1.9	1,992	1,622	277	377	...	17	2	...	28	10	...	...	5	78	...	91	252	73	64	175	28	61	627	81
1912...				24.8	19.1	0.7	1,903	1,464	204	412	...	6	5	...	11	6	1	...	6	18	...	69	231	71	66	166	16	56	560	58
1913...				24.2	21.5	1.9	1,853	1,645	253	424	...	16	4	2	...	3	...	...	6	114	...	110	202	79	95	300	14	57	643	60
1914...				24.3	19.9	2.1	1,897	1,551	226	367	...	9	9	1	64	13	...	...	4	67	...	85	231	79	74	242	15	48	581	60
1915...				23.18	20.7	1.5	1,778	1,584	235	418	...	14	12	...	22	14	...	...	5	49	...	152	211	72	66	255	13	50	590	79
1916...	,,	76,673	28.6	22.6	18.2	1.0	1,732	1,394	182	387	...	6	6	1	11	9	1	...	6	35	...	97	189	69	66	132	14	31	564	51
1917...				20.2	17.5	0.8	1,552	1,340	169	395	...	...	1	1	14	3	1	...	3	34	...	74	202	78	62	127	24	40	514	60
1918...				20.8	20.5	2.2	1,599	1,570	189	326	...	88	1	1	27	6	...	...	8	40	...	247	187	75	61	111	20	29	596	43
1919...				23.8	20.2	1.1	1,825	1,551	183	414	...	1	2	3	7	32	...	...	1	40	...	248	156	58	69	167	19	26	564	50
1920...				28.3	17.5	1.9	2,169	1,341	173	355	...	2	5	...	40	60	...	...	13	22	...	69	159	46	86	159	30	32	574	59
1921...				24.6	15.4	1.4	1,887	1,181	144	313	...	...	...	1	1	56	...	...	4	1	...	40	125	34	75	81	71	82	482	59
1922...				24.2	18.0	1.06	1.853	1,383	173	392	...	38	...	...	...	42	...	...	2	...	37	128	176	39	70	127	39	28	571	67
1923...				26.2	14.0	0.7	2,007	1,071	133	332	...	...	...	1	...	23	...	...	1	24	4	55	130	32	84	79	28	38	446	42
1924...				25.5	17.8	1.4	1,990	1,386	175	396	...	...	...	...	81	12	...	...	2	10	25	146	164	32	94	133	18	29	568	40
1925...				23.8	15.5	0.8	1,827	1,185	136	397	...	...	2	...	2	6	...	...	5	45	8	60	134	31	92	106	25	38	457	32
1926...	,,	78,490	29.2	21.5	17.3	2.4	1,687	1,359	220	361	...	75	6	1	32	18	...	...	2	53	13	116	126	46	82	100	25	27	501	37
1927...				21.7	14.7	0.5	1,101	1,152	148	343	...	1	6	...	...	9	...	...	2	24	17	63	129	35	78	104	28	27	449	52
1928...				21.7	15.0	0.8	1,767	1,179	135	398	...	...	4	...	8	22	...	...	2	28	17	80	109	29	101	178	27	34	459	34
1929...				20.9	16.7	1.4	1,816	1,308	156	404	...	15	3	1	30	33	...	...	1	25	12	81	141	17	92	93	26	44	552	42
1930...				25.4	16.1	1.8	1,998	1,264	155	399	...	22	8	...	5	64	...	...	...	37	5	88	117	25	96	116	22	36	584	25

III.—INFECTIOUS DISEASES.

The following diseases are compulsorily notifiable in this area :—

Small Pox.	Measles
Cholera	Diarrhoea
Typhus.	Acute Primary Pneumonia.
Typhoid (Enteric Fever).	Acute Influenzal Pneumonia.
Simple Continued Fever.	Malaria
Scarlatina.	Dysentry.
Puerperal Fever.	Encephalitis Lethargica.
Diphtheria	Varicella.
Membraneous Croup.	Cerebro Spinal Meningitis.
Erysipelas.	Palionyelitis.

The Infectious Disease (Notification) Act, 1889, was by a resolution of the Corporation, dated 7th February, 1890, adopted in the County Borough.

The Act was subsequently made to apply to the following diseases :—

Name of Disease	Date of Resolution making Act applicable.	Period in force.
Cerebro-Spinal Meningitis ...	13 July, 1900 ...	Till 31st December, 1900
do. ...	22 February, 1907	Till revoked
Varicella or Chicken Pox ...	7 March, 1902 ...	do.
Measles	26 May, 1905 ...	do.
Diarrhoea	14 December, 1906	1 July, 1907, to 31 Oct., 1907
do.	12 February, 1909	1 July, 1909, until revoked
Poliomyelitis or Infantile Paralysis ...	10 November, 1916	Till revoked.

The Infectious Disease (Prevention) Act, 1890, was, by a resolution of the Corporation, dated 11th March, 1892, adopted and put in force in the County Borough.

The Public Health Acts Amendment Acts, 1907, was adopted and put in force by a resolution dated the 24th January, 1908, save as regards Sections 21, 24 to 33, 48, 66, 78 to 86, and 91 to 95.

By a General Order of the Local Government Board, dated the 7th March, 1919, known as the Public Health (Ireland), (Pneumonia, Malaria, Dysentry, etc.) Regulations, 1919, the Notification of cases of Malaria, Dysentry, Trench Fever, Acute Primary Pneumonia, and Acute Influenzal Pneumonia occurring in the District was made notifiable by Medical Practitioners, and at the same time the provisions of the Order were extended to cases of Enteric, Typhus and Relapsing Fevers.

The following Table shows the number of cases of Infectious disease notified each year for the past ten years.

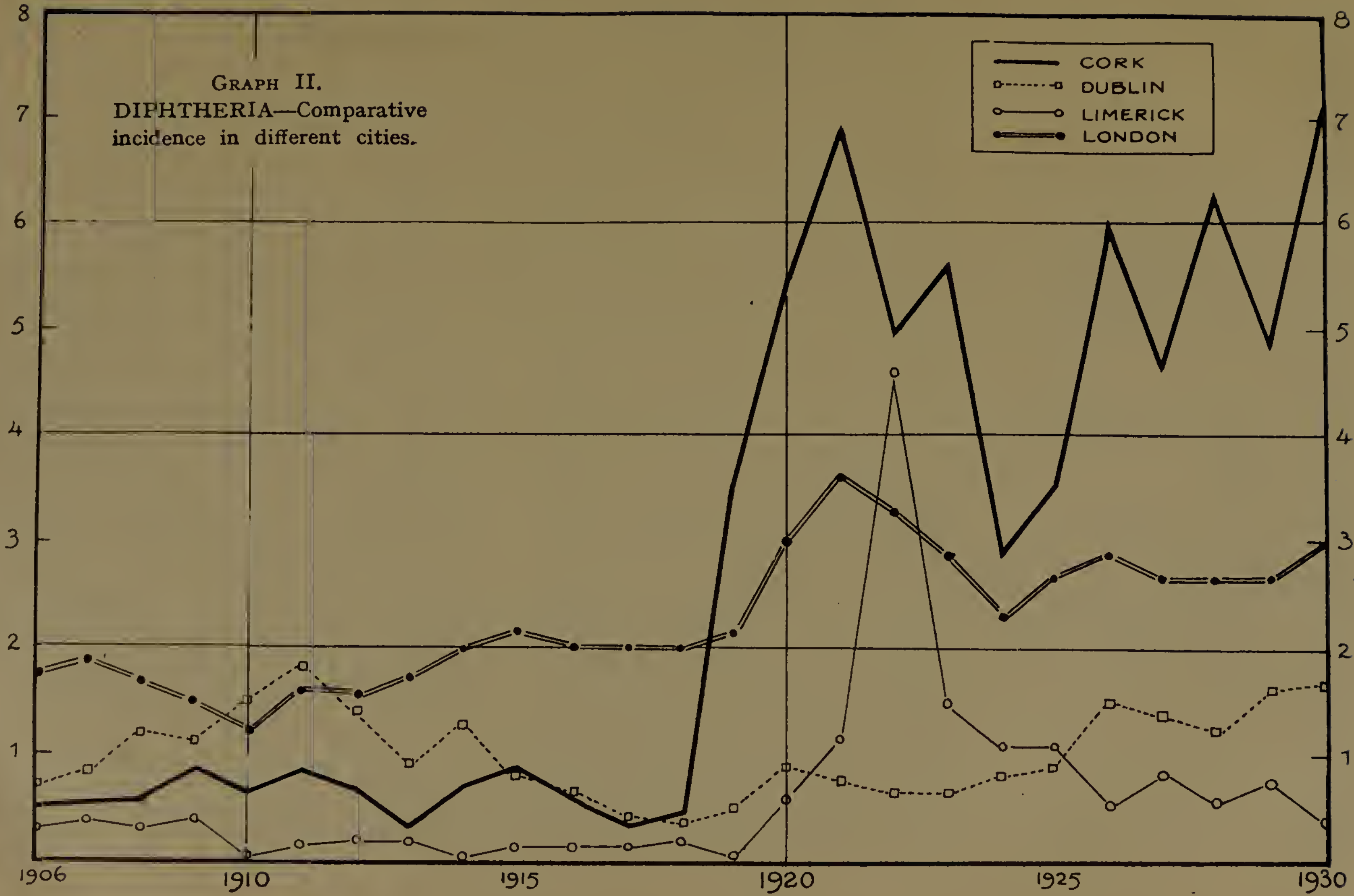
Table 11.—Prevalence of Infectious Disease over a period of ten years, 1921—1930.

Disease	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
Small Pox	—	—	—	—	—	—	—	—	—	—
Typhus	—	—	1	1	—	4	4	1	1	—
S. Continued Fever ...	1	—	1	—	—	2	1	—	—	1
Scarlatina	14	29	44	41	81	278	205	208	216	238
Puerperal Fever ...	4	1	1	3	4	4	14	7	6	6
Memb. Croup ...	8	5	4	3	9	11	11	15	4	5
Diphtheria	541	379	440	217	265	469	344	385	369	588*
Erysipelas	17	14	45	30	35	34	25	24	24	38
Measles	2	324	10	5	94	534	7	6	226	241
Malaria	—	—	—	4	—	—	—	—	—	—
Diarrhoea	105	19	35	30	142	108	76	79	78	59
Acute Primary Pneumonia	—	—	—	—	5	—	—	12	7	3
Acute Influenzal ;,	—	—	—	—	—	—	—	—	—	—
Varicella	28	29	30	54	117	59	76	64	80	72
Encephalitis Lichargita ...	—	—	—	2	1	1	3	—	2	1
Cerebro-Spinal Meningitis	—	—	—	—	—	—	1	1	—	—
Poliomyelitis	—	—	—	—	—	—	1	—	—	—
Typhoid	21	6	7	12	27	11	10	17	6	—

* In addition to the 588 cases of diphtheria notified during 1930, there were 36 cases of diphtheria and scarlatina, two cases of diphtheria and measles, and one case which was notified as "Diphtheria, Scarlatina and Measles." To the 369 cases notified in 1929, must be added three cases of Scarlatina and Diphtheria, and two cases of Diphtheria and Measles.

DIPHTHERIA.

The past year has been characterised by a very severe visitation from this disease. 588 cases were notified, representing an incidence of 7.5 per 1,000 of the population. If one adds to these 32 cases notified as Diphtheria and other concurrent diseases such as scarlet fever, measles, etc., the figure is raised to a rate of 7.9 per 1,000, which is an extremely high incidence indeed. It seems clear, however, that an appreciable proportion of these cases were wrongly notified. Under the existent arrangements in regard to the hospitalisation of cases of infectious disease, it is impossible for the Public Health Department to maintain an adeqaute check on admissions and diagnosis. It has, however, been possible to check some of the cases which were notified during the year. These were children who had received immunisation treatment at the Corporation clinic and were subsequently notified to the Department as suffering from Diphtheria. These cases were investigated and it was found in the great majority of them that the requisite period (four to six months) for the development of immunity had not supervened, but it was also found that, taking the group as a whole, out of fifty cases, the diagnosis was not confirmed in nineteen instances. This represents over one-third of the cases, and it is highly probable that if a similar proportion were deducted from the notifications received the resultant figure would probably present the real picture for the year. Even granting this, there remains the fact that the epidemic which we have gone through was probably one of the worst in the history of the City. The following Table shows an analysis of the cases according to age and sex groups.



GRAPH II.
DIPHTHERIA—Comparative incidence in different cities.

Table 12.—Analysis of Diphtheria Cases, 1930 (including cases notified as " Diphtheria and Scarlet Fever, etc.)

Age averages	Males	Females	Total
0—1 year ...	4	3	7
1—5 years ...	83	76	159
5—10 years ...	101	106	207
10—15 years ...	36	52	88
15—20 years ...	13	36	49
20 and over ...	35	79	114
Totals ...	272	352	624

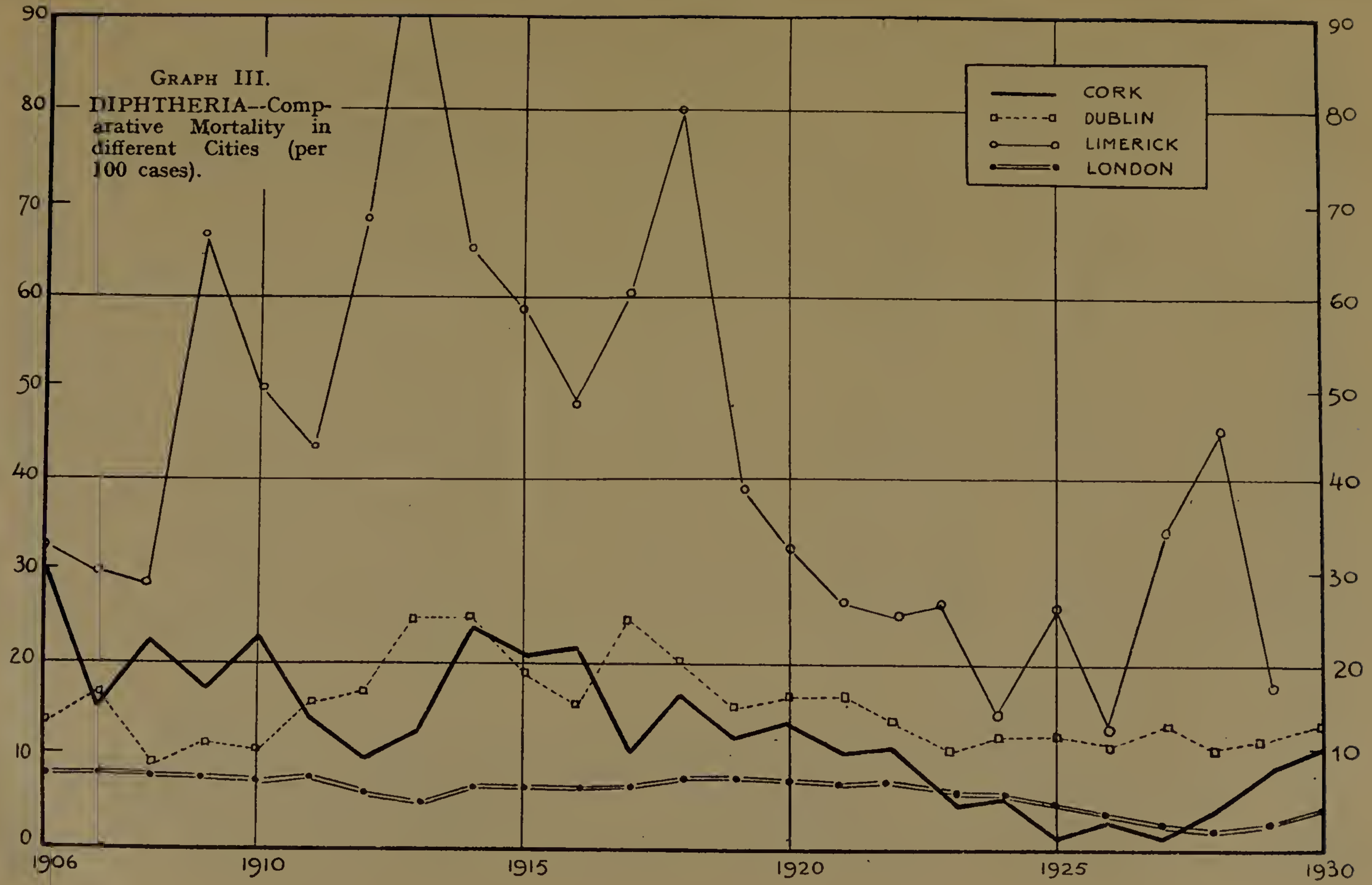
The most remarkable feature of this Table is the abnormally high proportion of cases in the age-group of 20 years and upwards which lends support to the view that a good deal of the reported cases were not diphtheria at all. Of these 114 cases seven were over 40 years of age, and two were over 60. Both of the latter were found not to be suffering from diphtheria. At the other end of the scale it is to be noted that there were seven children under one year of age, which is also an unusual feature of diphtheria. 34 cases under two years of age were notified. The incidence of the disease fell most heavily upon the age-groups 1 to 5 years and 5 to 10 years, more so on the latter than the former, that is to say, school children suffered most severely from the disease. In this respect the main epedimiological characteristic of the disease has been maintained and it is evident that if real perventive work is to be carried out in the future children must be rendered immune before they reach school age. It will be noted that up to the 10-year group the incidence as a whole fell most heavily upon males while thereafter the females suffered much more markedly than males.

The number of " return " cases traced during the year was 19. The number of secondary cases (i.e., cases in which a previous notification was received in the same household within the incubation period) were 30. This figure is but a very small proportion of the total, and it seems clear that the main factors in the spread of the disease were (a) the " missed " abortive case in which there were little or no symptoms, and (b) the carrier. As regards the latter it was, unfortunately, impossible to make a census of the " carriers " in the various schools, but there was no feature of the epidemic which would suggest that any particular school was more heavily attacked than another. Indeed, the disease was spread over the whole city and the outlying districts as well. While all the factors which determine the onset of an epidemic such as this are not clearly understood enough is known to be able to say that the virulence of the micro-organism and the resistance of the community appear to be variable and as a result of these variations infectious diseases exhibit cycles of increased and lessened intensity. The last outbreak comparable to this one occurred in 1921 and 1922 which was about seven years before the onset of the present one, and it has been shown in New York that the periodicity of the disease in that city has assumed six-and-a-half year cycles.

In order that a clearer picture of the prevalence of the disease may be obtained graphical diagrams have been constructed showing the relative indidence of the disease in different cities (based on the notification of the disease). In comparing these curves it is important to bear in mind that they may not be strictly accurate for comparative purposes, since notification may vary in different districts, and this supposition is borne out by a comparison of the curves for incidence with those for mortality. Graph II. shows the curves for Cork, Dublin, Limerick and London for each year from 1906 to 1930 and illustrate strikingly the remarkable increase which has occurred in Cork city since the year 1918. The only curve comparable to this is that of London, which also exhibits and upward trend but in a very much less degree. The curve for Limerick shows a very much smaller incidence but must be taken in conjunction with that for mortality (Graph III.) which would seem to indicate that there has been a neglect of notification in that city and that the incidence is really higher than it appears to be from the diagram.

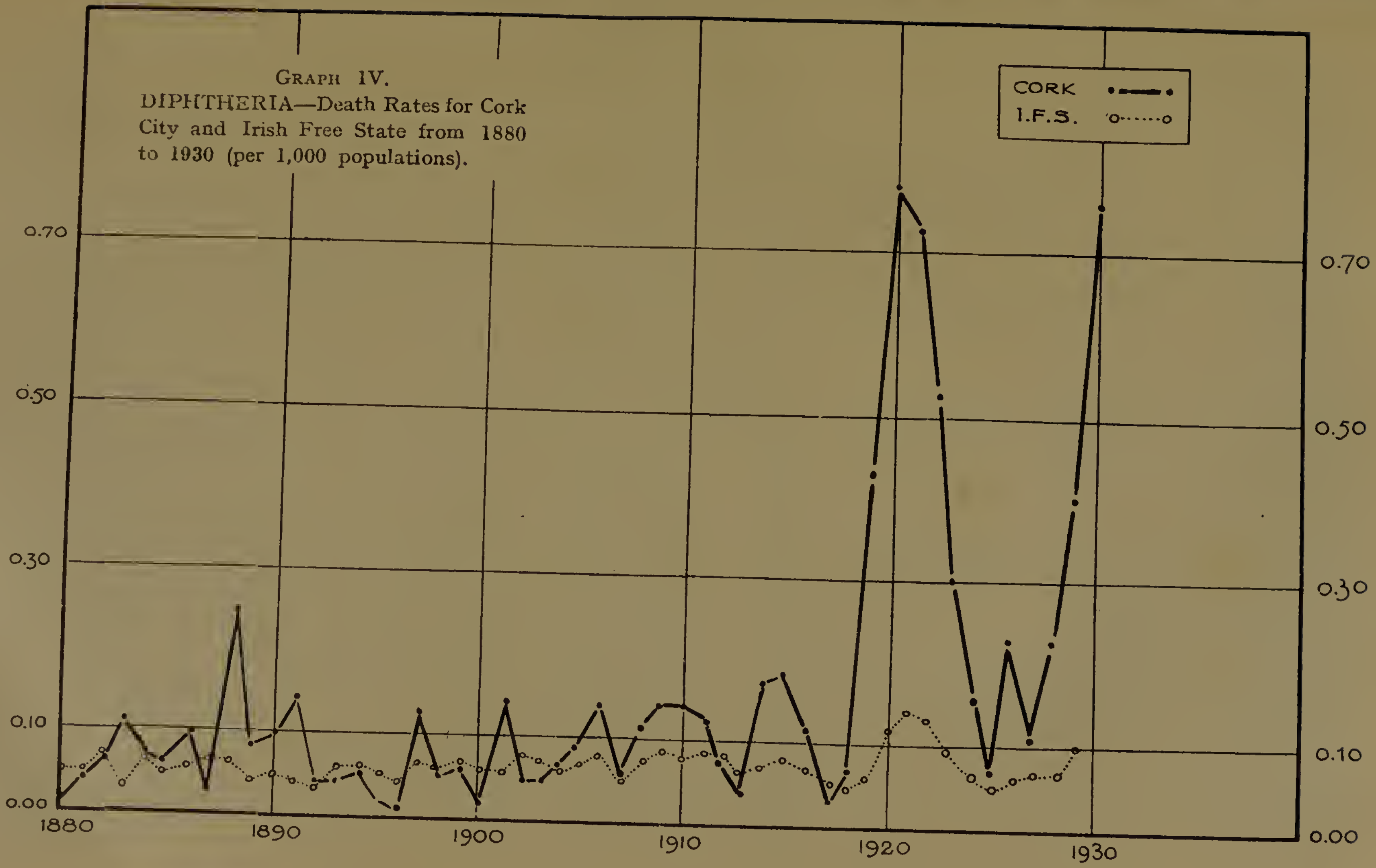
Graph III. illustrates the mortality from the disease and is based upon the number of deaths per 100 notifications received. It will be seen that there is a very marked reversal in the relative positions of the different cities. So far as Cork is concerned, with the exception of the past three years there has been a steady decline. The curve for London shows a slow but steady decline over the whole period, while that for Dublin does not exhibit much variation, taken as a whole. On the other hand the curve for Limerick exhibits extraordinary fluctuations and is remarkable for its height as compared with the other three. The only obvious explanation for this feature is that offered above, that there has been a general neglect of notification. If all the cases of diphtheria which occurred in that city during the period had been notified then the relative mortality would have been considerably less. The reverse probably holds true for Cork. Reference has already been made to the fact that in cases which had been personally invesitgated by the Department, a definite proportion had been found not to be suffering from diphtheria, and this is confirmed by a study of the two graphs, for it is found that when the prevalence was small the mortality was relatively high, and the reverse is found to be the case when the incidence is much greater.

It is quite clear, however, from these graphs that there has been a very marked increase in the amount of diphtheria in the city in recent years. In order to illustrate this fact a further diagram (Graph IV.) has been constructed, based on the death rate from the disease for the City and for the country as a whole (per 1,000 of the population living). It will be seen at once from this diagram that there has been a greatly increased number of deaths in Cork city corresponding to the periods of increased incidence as shown in Graph II., but in this case there are two distinct epidemic periods, the first commencing in 1919, and lasting until 1922, and the second in 1929 and persisting to the end of 1930. Graph IV. probably gives a true picture of the relative position of the city in regard to diphtheria and sugggests very forcibly that if a repetition is to be avoided we must press forward with our immunisation scheme for our experience in connection with it has already shown that it is the only really reliable method in our hands to combat the very serious menace of diphtheria



GRAPH III.

DIPHTHERIA--Comparative Mortality in different Cities (per 100 cases).



Graph IV.

DIPHTHERIA—Death Rates for Cork City and Irish Free State from 1880 to 1930 (per 1,000 populations).

The case mortality for the disease was 10 per cent., which was the highest since 1921 and 1922, when it was 10.3 and 11.0 per cent respectively In 1929 the case mortality was 8.4 per cent. With the exception of these four years the case mortality from diphtheria has been quite low as compared with other cities. The following Table brings out this feature more clearly :—

Table 13.—Case Mortality from Diphtheria.

Year	Cork	Dublin	Limerick	London
1921 ...	10.3	17.8	26.4	8.2
1922 ...	11.0	12.8	26.2	7.4
1923 ...	5.1	10.5	27.2	7.0
1924 ...	5.4	12.1	13.7	7.5
1925 ...	2.1	11.9	25.0	5.9
1926 ...	3.7	11.4	8.5	5.3
1927 ...	2.5	13.6	34.7	3.9
1928 ...	4.7	10.8	—	4.0
1929 ...	8.4	11.2	10.3	3.2
1930 ...	10.0	12.2	—	3.2

The excessive variation in the figures for Limerick suggests defective notification, a factor which should be borne in mind if a comparison of the two districts is to be instituted.

The actual number of deaths from diphtheria which were registered during the year in the city was 63. Reference to Table X will show that this was the highest number of deaths from the disease as far as our records show. The nearest figure to this was in 1920 when 60 deaths occurred. The deaths in 1930 were distributed as follows :

Table 14.—Deaths from Diphtheria (age and sex distribution).

Age Averages	Males	Females	Total
0—1 year ...	1	—	1
1—5 years ...	20	16	36
5—10 years ...	10	12	22
10—15 years ...	1	3	4
15—20 years ...	—	—	—
20 and over ...	1	—	1
Totals ...	33	31	64

The greatest mortality was amongst the 0—5 years group which accounted for 57.82 per cent. of the total number of deaths, while the 5—10 years group accounted for 34.37 per cent, 6.25 per cent. occurred amongst 10—15 years, and 25 and over group furnished the remaining 1.56 per cent. It will be seen, therefore that no less than 92.29 per cent of the deaths occurred amongst children under 10 years. These figures emphasise once more the importance of immunising pre-school children against diphtheria, for it can be clearly shown that immunisation effects an enormous reduction in the incidence and mortality of diphtheria.

IMMUNISATION AGAINST DIPHTHERIA.

In April, 1930, a survey was made of the children who had received immunisation treatment and their subsequent history as to the occurrence of the disease amongst them. This survey related to the year ending 31st December, 1929. Immunisation had been commenced in the preceding June and by the end of the year 1802 children had been treated. A certain number of these were subsequently reported to be suffering from diphtheria. In all twelve such cases were reported and each of them was investigated. No less than ten of the number were eliminated, for the following reasons : (a) Four had not completed treatment (three had only one injection and one only two) ; (b) in three cases a period of less than four months had elapsed (in two cases only one month, and in one case only two weeks) ; (c) In three other cases the diagnosis was not confirmed. Thus, out of a total of 1802 cases who received inoculations two cases subsequently developed diphtheria which is equivalent to an incidence rate of 1.11 per 1,000. During the same year 298 cases of diphtheria were notified amongst our child population (under 15 years) of 22,605, which is equivalent to a ratio of 13.18 per 1000 During this period no case occurred amongst children who had been Schick tested after treatment and were known to be negative.

A further survey has recently been made which includes the whole period from the commencement of immunisation in June 1929 to the end of 1930, during which period a total of 5,164 children were dealt with, of whom 4,659 completed the full course of treatment, or approximately one-fifth of the total child population of the city under fifteen years. The results of this survey are set out in tabular form as follows :

1.—Results of Schick tests performed—

BEFORE Treatment.

Place	Positive	Negative	Total
In School ...	800	181	981
At Clinics ...	116	73	189
Totals ...	916	154	1,170

The proportion of children, therefore who were found to be Schick-positive or susceptible to diphtheria was 78.29 per cent.

2.—Number of children who completed full course of treatment, 4,659.

3.—Number who did not complete full course.

(a) One injection only	229
(b) Two injections only	276
Total	505

4.—Results of Schick-tests performed AFTER treatment—

(a) Negative	661
(b) Positive	53
(c) Doubtful	91
Total	805

It will be seen, therefore, that the proportion of children who were definitely positive after treatment was only 6.58 per cent. (as compared with 78.29 per cent. before treatment). It has been repeatedly found during the course of these post-treatment tests that there are a number of children in whom the interpretation of the tests has been difficult. It is highly probable that in such cases the results were negative, but in order to avoid any possibility of doubt they have been put in a separate category, and in each case one further dose of toxoid-antitoxin was administered. Further treatment was also given to each of the positive reactors making a total of 144 cases who received an extra dose. Fifty nine of these cases subsequently attended for a further Schick-test and the results were as follows :

Negative	55
Positive	3
Doubtful	1
Total	59

Owing to lack of staff it has not been possible to offer the Schick-test to those children who were immunised in school, but, in every case the tests was offered to those who were treated at the clinic. On the whole the response has been very satisfactory as something like 70 per cent. of the children attended for the test.

5.—Analysis of cases who had received immunising treatment and were subsequently reported to be suffering from diphtheria

(a) Diagnosis not confirmed		19
(b) Had not completed treatment—		
(1) One injection only	8	12
(2) Two injections only	4	
(c) Received full course, but period of four months had not elapsed :		
(1) One months (or less) ...	5	8
(2) Two months (or less) ...	2	
(3) Three months (or less) ...	1	
(d) Diagnosis of diphtheria confirmed, received full course and developed disease more than four months after treatment		11
Total		50

It will be noted that out of a total of 4,659 children who completed the full course of treatment, eleven cases subsequently developed diphtheria. This is equivalent to a rate of 2.35 per 1,000. How does this compare with the rate amongst children who had not been immunised ? According to the census of 1916, the population of Cork under 15 years amounts to 22,605, deducting the number who have been immunised we have a group of 17,496 who have not been protected by immunisation. During the year 1930 461 cases of diphtheria occurred amongst this group which is equivalent to a rate of 25.69 per 1,000. That is to say, the prevalence of diphtheria was eleven times as great amongst unprotected children as it was amongst immunised children.

These figures are striking testimony to the value of immunisation. If anything, they under estimate it, for it has to be pointed out that amongst the eleven cases who were accepted as suffering from diphtheria in only three instances had bacteriological examination been carried out. It is probable that some of these were not true diphtheria. The value of the method in another direction is also very strikingly demonstrated in the following paragraph :—

6.—Case Mortality amongst immunised and non-immunised children

(a) Deaths among **Non-Immunised** children ...	63
(b) Deaths among **Immunised** children	0
(c) Percentage mortality—	
(i) Non-Immunised	13.8 per cent.
(ii) Immunised	nil.

These figures are in keeping with the clinical course of the disease for, with two exceptions, the eleven cases referred to were classified as mild. In the two exceptions one was classed as severe infection, and one moderately severe. There seems to be no doubt, even amongst those cases who develop diphtheria subsequently to immunising treatment, that the effect of the inoculations is to definitely modify the severity of this disease.

Our experience with immunisation over the past eighteen months has convinced me that it is the most potent weapon which we possess for the prevention of diphtheria. The principal causative factor of the disease is the carrier who acts a source of infection without suffering from the disease himself and who will always be a danger to the community notwithstanding what efforts are made in regard to disinfection, isolation and quarantine, and it seems quite clear, in the light of modern knowledge, that the only possible hope of completely eradicating the disease lies in immunisation and in immunisation alone. If immunisation was carried out to the same extent as vaccination, there is no doubt that diphtheria would become as rare as smallpox is in this country.

SCARLATINA.

238 cases of scarlatina were notified during the year, which was the highest since 1926. Eight deaths were registered as due to the disease, which is equivalent to a case mortality of 3.4 per cent. Scarlatina has been a comparatively mild disease for many years and the mortality has fallen very considerably during this period, as will be seen from a perusal of Table 10. It is by no means, however, a disease that should be treated lightly as cardiac complications and nephritis are liable to ensue. As in the case of diphtheria, the missed abortive case and the " carrier " are the principal factor in its spread. Both diphtheria and scarlatina belong to that group of infectious diseases which are spread by " droplet infection." During the acts of coughing, sneezing and even loud talking an invisible spray is projected for some distance in front of the individual,which has been proved to contain the germs of disease from the throat, and therefore to be liable to infect anyone coming within its sphere of influence. Direct contact with articles used by infected persons, such as feeding utensils, towels, pencils, etc., is also liable to transmit the disease.

These facts illustrated the importance of proper supervision over the habits of the children, particularly while in school as these are undoubtedly the main source of the spread of infectious disease. The general habits, the long continued close contact and the mental and physical fatigue to which they are subjected render school children a ready prey to infectious diseases. In connection with this matter we cannot help feeling that the time has now come when steps should be taken not only to alleviate the conditions outlined above, but also to make the teaching of elementary hygiene an integral part of the school curriculum. Many of the causative factors of disease and the means of preventing them are now very well understood and it seems only reasonable to expect that this knowledge should be handed on to those who are most likely to benefit by it and are most in need of it.

MEASLES.

241 cases of measles were notified during the year. These notifications represent the latter half of an epidemic which commenced in late autumn of the previous year. Prior to the 1st January, 1930, 226 cases had been notified, so that it may be said that as a result of this epidemic 467 children were attacked. Notification of measles has only been in force since 1905, and the general trend of epidemics since then has exhibited a three-yearly periodicity. During the course of this epidemic 37 children died, which is equivalent to a mortality of approximately 8 per cent. In the previous epidemic (1925—26) 628 children were affected and 75 (or 10.2 per cent) died. while in 1922—23 324 children were affected with 38 (or 10.1 per cent.) of deaths. It is to be noted, therefore, that measles in childhood is a particularly serious disease, notwithstanding the very general opinion which is held to the contrary. Although, as shown above, the mortality from scarlet fever is only 3.4 per cent. this disease is regarded much more seriously than measles. At no time has the mortality from diphtheria in this city exceeded 11 per cent., and it has been only on very exceptional occasions that it has reached anything like this figure. On the other hand it will be found that the mortality from measles during epidemic periods is always somewhere in the region of 10 per cent. Measles must, therefore, be regarded as being one of the most serious diseases of childhood and all precautions should be taken against it to secure that its advent is postponed to as late in childhood as possible. The mortality falls most heavily upon very young children and infants, and is often, in large measure, due to the deplorable custom of deliberately exposing young children to the disease so that they may " put it over them." A study of the previous records enabled one to forecast this epidemic, and steps were taken to warn teachers and others to advise necessary measures of prevention. Whereas in most localities these visitations of measles are biennial, in Cork they appear to have assumed a triennial character. On this assumption therefore we may expect another outbreak in the Autumn of 1932.

WHOOPING COUGH.

This disease is not notifiable. It is therefore impossible to state exactly the number of cases which occurred during the year. It is evident, however, that there must have been a very considerable number as 35 deaths were registered as due to whooping cough during the winter of 1929—30. The great majority of these deaths (30) were registered in 1929. Treated reasonably and with proper precautions, whooping cough is not a very serious disease and the mortality is low. Broncho pneumonia is the most serious complication and is in the majority of cases due to neglect in adopting proper measures to deal with the disease.

PUERPERAL FEVER.

Six cases were notified during the year. There were no deaths from the disease. The numbers of notifications during the previous ten years is shown on Table 11. This disease is dealt with more fully under Maternal Mortality.

SIMPLE CONTINUED FEVER.

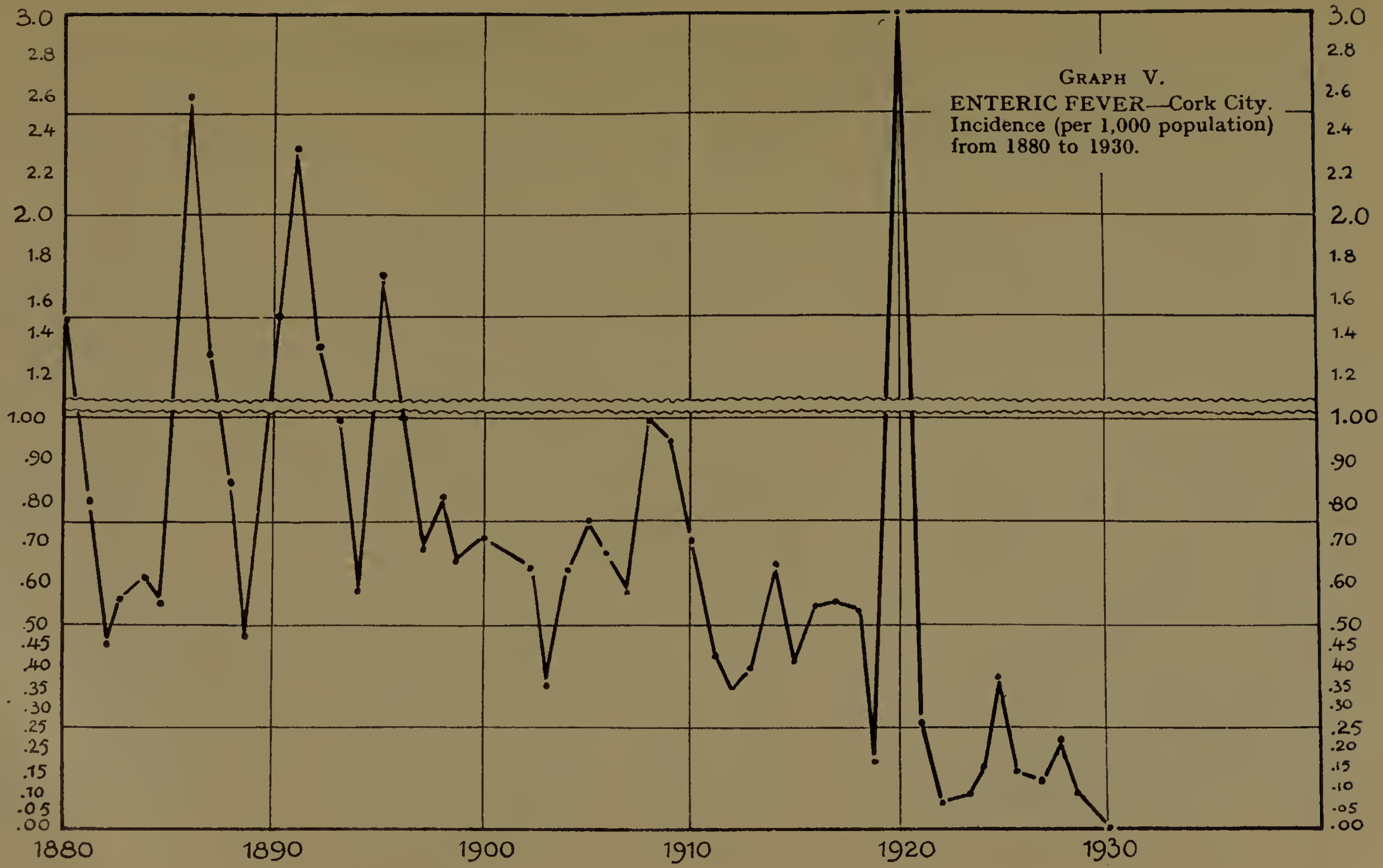
This disease continues to be occasionally represented in the tables of notifications. One such case was registered during the year. Formerly there were considerable numbers of cases in which the diagnosis was given as simple continued fever but for the past thirty-five years these cases have been few and far between. Reference to Table 10 will show that since 1893 only 10 deaths have been registered as attributable to this disease. Increased knowledge and better technical methods have resulted in the majority of cases which were formerly diagnosed as simple continued fever being distributed amongst other diseases such as typhoid fever, influenza and tuberculosis.

TYPHUS.

There was no case of this disease during the year. References to Tables 10 and 15 will show the very marked improvement which has been effected in the health of the city in respect of typhus. Fifty years ago it was our most dreaded visitant. In the decade 1879—88 nearly 5,000 cases occurred in the city (including an epidemic of 1406 cases in 1881) whereas in the last decade only six cases were notified. Two cases were notified in the year 1929 but one was subsequently found not to be suffering from the disease. It was impossible to trace the source of the disease in the one case which did occur. In former reports of this Department attention has been drawn to the fact that typhus is usually found associated with conditions of filth and overcrowding. It should be added that the active agent in transmitting the disease from one individual to another is the louse. In the absence of lice no amount of filth and overcrowding will induce typhus, but once the disease has been introduced to a community conditions such as these will undoubtedly facilitate its spread. The importance of personal cleanliness will be realised in this connection. The disease still occurs sporadically in certain parts of this and neighbouring counties, so that there is always the risk of its being introduced to the city. This has occurred in previous years but the prompt measures taken to deal with such outbreaks has sufficed to keep it within strict limits and are reflected in the statistical tables. A detention home is maintained for the purpose of dealing with contacts, who are promptly isolated while thorough disinfection is carried out in infected houses.

ENTERIC FEVER (TYPHOID).

No case of typhoid fever occurred during the year. This fact is a noteworthy one, inasmuch as it was the first time in the history of the city that it was completely free from this disease. The incidence and mortality from this disease from the year 1879 are set out in Tables 10 and 15 respectively, both of which demonstrated the very great improvement which has been effected in recent years in respect of this disease. Reference is made in another section to the installation in 1928 of the auxiliary water purification plant which has been working effectively



GRAPH V.
ENTERIC FEVER—Cork City.
Incidence (per 1,000 population)
from 1880 to 1930.

since that year, and the measures taken to ensure the purity of the supply. It seems clear that this has been the main factor in effecting the very marked reduction in the incidence of enteric fever in the city. It is true that seventeen cases were notified in 1928, but thirteen of these arose in small epidemic which occurred in the Mayfield district and which was traced to an infected milk supply. This outbreak though small in extent and mild in character was of interest as illustrating the possibility of the introduction of typhoid through infected foodstuffs. An examination of the enquiry cards revealed that all the cases were supplied with milk from the same source—a farm in the neighbourhood. This farm was visited and an investigation made. One of the persons interviewed was a sister of the farmer and it was at first thought that she was the source of the outbreak as she gave a history of having suffered from typhoid about a year previously. Subsequent bacteriological examination of urine and faeces yielded negative results). It was however discovered that the wife of the farmer was actually ill in bed and it was stated that " she was run down and being treated for a cold." She was then examined and her condition diagnosed as typhoid. She was at once removed to hospital and the milk supply stopped. These measures had the effect of cutting the epidemic short at once.

It is well to refer also briefly at this juncture to the great outbreak which occurred in the year 1920. This was the biggest epidemic of enteric fever in the history of the City and, I understand, that it was clearly traced to infection of the water supply just above the source at which it was drawn. The sudden and violent inset in this case was characteristic of water-borne infection. The present precautions in regard to the purification and control of the water-supply render the possibility of another such outbreak extremely remote.

The typhoid history of the city has been constructed in diagrammatic form in Graph V., which illustrates strikingly the various phases of the disease, the marked improvement which has taken place and the outbreak of 1920 referred to above. The improvement is really more marked than illustrated in the diagram, which had to be broken in order to accommodate the fluctuations which have taken place. Above the line representing the figure of 1.00 per 1,000 the values are twice as great as those below it. From a study of the graph it is evident that the city must have been subject to periodic outbreaks of the disease prior to 1900. After that year, and up to 1920 the trend is downward, and from 1921 the decline is very marked until the zero figure was reached in 1930.

DIARRHOEA.

Fifty-nine cases of diarrhoea in children under two years of age were notified during the year. The great majority of these cases were due to gastric and intestinal disturbances of a non-infectious character. There was no suggestion of an epidemic. 37 children died from the disease. On the whole there has been a decided improvement in recent years in regard to infantile diarrhoea and with the further extension of the Child Welfare Scheme it is hoped that still greater improvement will be effected.

OTHER INFECTIOUS DISEASES.

Notifications in respect of other diseases during the year were as follows :—Membranous Croup, 5 ; Erysipelas, 8 ; Acute Primary Pneumonia, 3 ; Varicella, 72 ; Encephalitis Lethargica, 1.

Table 15.

Yearly Summary of Infectious Diseases, 1879—1922.

Year	Small Pox	Typhus	Typhoid or Enteric Fever.	Simple Continued Fever	Scarlatina	Puerperal Fever	Membraneous Croup	Diphtheria	Erysipelas	Whooping Cough	Measles	Diarrhœa	Chicken Pox	Pulmonary Tuberculosis	Cerebro-Spinal Meningitis	Poliomyelitis	Malaria	Dysentry	Other Zymotic or Infectious Diseases	Encephalitis Lethargica	Pneumonia	
																					Acute Primary	Acute Influenza
1879	—	337	91	335	386	—	—	2	30	10	269	107	—	—	—	—	—	—	13	—	—	—
1880	—	756	117	420	616	—	—	9	37	19	282	48	—	—	—	—	—	—	1	—	—	—
1881	—	1406	66	364	103	—	—	—	31	13	240	5	—	—	—	—	—	—	1	—	—	—
1882	—	683	37	239	25	—	—	3	11	4	146	3	—	—	—	—	—	—	—	—	—	—
1883	—	844	45	164	105	—	—	6	—	—	109	1	—	—	—	—	—	—	—	—	—	—
1884	—	456	48	221	158	—	—	2	14	18	106	3	—	—	—	—	—	—	—	—	—	—
1885	1	159	43	94	143	—	—	2	17	—	35	—	—	—	—	—	—	—	—	—	—	—
1886	—	83	180	70	86	—	—	1	14	3	24	—	—	—	—	—	—	—	—	—	—	—
1887		67	100	46	17	—	—	4	25	1	182	1	—	—	—	—	—	—	—	—	—	—
1888	—	72	66	40	55	—	—	7	25	2	232	—	—	—	—	—	—	—	—	—	—	—
1889	—	48	37	24	90	—	—	9	12	4	—	—	—	—	—	—	—	—	—	—	—	—
1890	—	54	113	36	128	5	3	20	27	—	3	2	—	—	—	—	—	—	—	—	—	—
1891	1	24	165	46	64	3	3	37	27	—	2	—	—	—	—	—	—	—	—	—	—	—
1892	1	162	104	53	19	—	3	11	45	—	74	1	—	—	—	—	—	—	1	—	—	—
1893	—	92	78	26	91	3	—	18	70	—	4	2	—	—	—	—	—	—	—	—	—	—
1894	—	25	43	29	301	5	6	14	65	—	11	2	—	—	—	—	—	—	—	—	—	—
1895	—	29	132	23	53	3	1	6	45	—	2	—	—	—	—	—	—	—	—	—	—	—
1896	—	22	94	29	69	6	—	7	54	—	3	2	—	—	—	—	—	—	—	—	—	—
1897	—	30	51	23	34	7	4	21	35	1	9	—	—	—	—	—	—	—	1	—	—	—
1898	—	61	62	30	30	6	7	18	20	1	2	—	—	—	—	—	—	—	—	-	—	—
1899	—	9	47	14	22	2	10	18	60	—	23	—	—	—	—	—	—	—	—	—	—	—
1900	—	28	50	27	401	2	2	23	36	—	—	—	—	—	8	—	—	—	1	—	—	—
1901	—	13	51	29	288	3	12	26	38	—	—	—	—	—	8	—	—	—	—	—	—	—
1902	—	6	49	16	119	4	1	8	49	5	8	—	7	—	3	—	—	—	—	—	—	—
1903	3	7	27	16	51	2	6	17	58	—	5	—	49	—	1	—	—	—	—	—	—	—
1904	1	11	50	33	29	4	3	29	43	—	2	—	39	—	4	—	—	—	—	—	—	—
1905	1	9	58	47	35	7	8	18	50	—	7	—	33	—	4	—	—	—	—	—	—	—
1906	—	6	48	31	23	10	1	37	48	—	8	—	49	—	3	—	—	—	2	—	—	—
1907	—	10	44	44	50	6	4	37	42	—	4	413	63	31	8	—	—	—	—	—	—	—
1908	—	23	88	55	114	4	6	40	26	—	379	524	14	27	1	—	—	—	1	—	—	—
1909	—	18	74	42	119	10	4	66	25	—	44	514	21	28	—	—	—	—	22	—	—	—
1910	—	8	54	24	38	4	6	51	26	—	14	159	16	38	—	—	—	—	—	—	—	—
1911	—	10	32	22	39	4	13	70	31	—	433	352	1	3	1	—	—	—	—	—	—	—
1912	—	1	26	17	93	6	5	52	29	—	53	71	7	3	—	—	—	—	—	—	—	—
1913	—	5	29	13	81	4	10	24	28	—	254	320	2	22	—	—	—	—	—	—	—	—
1914	—	1	50	12	230	11	15	54	38	11	161	188	8	6	—	—	—	—	—	—	—	—
1915	—	—	32	4	245	2	8	68	44	1	160	177	10	17	6	—	—	—	—	—	—	—
1916	—	1	42	9	112	8	11	43	41	—	86	139	13	15	6	1	—	—	—	—	—	—
1917	—	3	43	6	46	1	9	26	24	—	28	83	8	4	3	—	—	—	—	—	—	—
1918	—	1	42	10	21	2	18	34	16	—	750	121	19	—	4	—	—	—	—	—	—	—
1919	—	15	12	3	16	4	21	262	18	—	3	85	26	7	2	—	30	3	—	—	—	37
1920	—	2	244	8	70	6	3	428	18	—	9	54	30	1	—	—	30	—	—	—	—	—
1921	—	—	21	1	14	4	8	541	17	—	2	105	28	2	—	—	—	—	—	—	—	—
1922	—	—	6	—	29	1	5	379	14	—	324	19	29	—	—	—	—	—	—	—	—	—
1923	—	1	7	1	44	1	4	440	45	—	10	35	30	—	—	—	—	—	—	—	—	—
1924	—	1	12	—	41	3	3	217	30	—	5	30	54	—	—	—	4	—	—	2	—	—
1925	—	—	27	—	81	4	9	265	35	—	94	142	117	—	—	—	—	—	—	1	—	5
1926	—	4	11	2	278	4	11	469	34	—	534	108	59	—	—	—	—	—	—	1	—	—
1927	—	4	10	1	205	14	11	344	25	—	7	76	76	—	1	1	—	—	—	3	—	—
1928	—	1	17	—	208	7	15	385	24	—	6	79	64	—	1	—	—	—	—	—	—	12
1929	—	1	6	—	216	6	4	369	24	—	226	78	80	—	—	—	—	—	—	2	—	7
1930	—	—	—	1	238	6	5	588	38	—	241	59	72	—	—	—	—	—	*	1	—	3

*See footnote to Table 11 re Notifications of Diphtheria in 1930.

DISINFECTION.

The following articles were submitted to steam disinfection during the year :—

The number of Articles Disinfected during the year 1930.

	No. of Beds	No. of Mattresses	No. of articles of Bedding	No. of articles of Wearing Apparel	Miscellaneous Articles	Total No. of Articles
January ...	62	126	895	147	78	1,308
February ...	63	112	935	231	57	1,398
March ...	39	73	510	104	50	776
April ...	40	114	709	123	68	1.054
May ...	53	150	1.054	154	131	1,542
June ...	44	105	797	120	54	1,120
July ...	50	129	852	91	43	1,165
August ...	39	80	540	63	57	779
September ...	53	101	812	171	67	1,204
October ...	44	113	811	184	67	1,219
November ...	45	108	854	101	45	1.153
December ...	54	101	876	112	62	1,205
	586	1,312	9,645	1,601	779	13,923

The practice of disinfecting premises by fumigation after the occurrence of cases of infectious disease was abandoned in this City in the year 1927. Our experience during the three years which have since elapsed has amply proved that fumigation has no influence in the prevention of the ordinary infectious diseases. In every case, however, the fomites are still removed for steam disinfection at the disinfecting station in the Cornmarket. Disinfection of premises by fumigation or spraying has been reserved for three diseases—tuberculosis, typhus and small pox. The latter disease is, fortunately, unknown in this country. Occasional cases of typhus are still liable to occur, and when this is so prolonged fumigation with sulphur-dioxide is carried out with a view to destroying lice which spread the disease. In the case of tuberculosis the walls, ceilings and floors are sprayed down with a solution of formalin, and the premises re-washed or re-papered. Most sanitarians are agreed that the liberal use of ordinary soap and water combined with thorough ventilation is a more effective means of disinfection than the burning of sulphur in infected households.

IV.—TUBERCULOSIS.

The tuberculosis death rate for the year was 1.84 per 1,000 of the population as compared with 2.24 for the previous year. The following Table shows the death rates from pulmonary tuberculosis for each year from 1911 to 1930.

Table 16.—Death rates from pulmonary tuberculosis, 1911—1930.

Year	No. of Deaths	Rate per 1,000 pop.	Year	No. of Deaths	Rate per 1,000 pop.
1911	252	3.29	1921	125	1.64
1912	231	3.01	1922	176	2.30
1913	202	2.62	1923	130	1.64
1914	231	3.01	1924	164	2.09
1915	211	2.88	1925	134	1.71
1916	189	2.46	1926	126	1.60
1917	202	2.63	1927	129	1.60
1918	187	2.43	1928	109	1.39
1919	156	2.04	1929	141	1.79
1920	159	2.07	1930	114	1.41

It will be noted that the figure for 1930 is the second lowest during the twenty years covered by the Table and that the general trend is in a downward direction. It is hoped that a material reduction will be effected in these figures when the present scheme for dealing with tuberculosis in the Borough has become fully established. The recent appointment of an assistant M.O.H., who is also clinical Tuberculosis Officer should be effective in speeding up the work of this branch.

The number of new patients who were examined at the Tuberculosis Dispensary during the year amounted to 332, of whom 210 were adults and 122 children. Of these 152 adults and 33 children were found to be suffering from some form of tuberculosis and the appropriate treatment afforded.

Sanatorium treatment is provided for all cases in which there is a reasonable prospect of cure or arrest of the disease. Unfortunately a great number of applicants for such treatment do not come under the notice of the tuberculosis department until the disease has reached an advanced stage. This militates greatly against the chances of a cure, and is responsible for the large proportion of relapses which occur when the patients return to their homes. The number of patients admitted to sanatorium was as follows :—

	Males	Females	Total
Insured ...	71	6	77
Uninsured ...	12	12	24
Children ...	1	2	3
Total ...	84	20	104

The question of institutional treatment has a very important bearing on the general working of tuberculosis schemes The success of sanatorium treatment is almost entirely dependent upon the patient coming under treatment at an early stage of the disease. Even in the moderately advanced cases the most that can be expected is an amelioration of the symptoms. As has been mentioned above, it is unfortunately true that a large proportion of those cases who attend the tuberculosis clinic for the first time have to be classed in the latter category, and a still larger proportion are found to be in an advanced stage. In connection with this matter an analysis has been made of one hundred new cases attending the clinic during the year. This group comprised both males and females and the result was as follows :—

Stage I. (early)	15
Stage II. (moderately advanced) ...	36
Stage III. (advanced)	49
	100

It will be seen that no less than 49 per cent were so advanced that sanatorium treatment was out of the question, while only 15 per cent. could be expected to derive definite and lasting benefit from such treatment. A great number of these cases unfortunately do not consult their medical advisers in time and very often it is not until the disease has made considerable headway that they come under observation. However, quite apart from the physical benefit derived from sanatorium treatment by the patient himself, as a result of such treatment he acquires habits of cleanliness and hygiene which are of value in regard to prevention when he has returned home. For this reason a good many patients are recommended for such treatment who might otherwise be refused for hospital treatment. Every patient is provided at the clinic with a flask and disinfectant for the disposal of his sputum, and is instructed in its use and in preventive measures generally.

The number of patients discharged from sanatorium during the year was as follows :—

	Males.	Females.	Total
Insured ...	54	5	59
Uninsured ...	10	8	18
Children ...	1	1	2
Total ...	65	14	79

Advanced cases who are unlikely to derive benefit from sanatorium treatment and who cannot receive adequate treatment in their own homes are admitted to St. Patrick's Hospital. The following cases were admitted during the year :—

	Males.	Females.	Total
Insured ...	63	3	66
Uninsured ...	21	23	44
Total ...	84	26	110

The following cases died or were discharged from this institution :—

	Males.	Females.	Total
Insured ...	45	3	48
Uninsured ...	14	18	32
Total ...	59	21	80

St. Patrick's Hospital is in all respects an admirable institution for dealing with this class of tuberculous patient, and it is satisfactory to note there is now considerably less reluctance to avail of it than was formerly experienced. Hospital isolation for advanced cases is an outstanding factor in the prevention of tuberculosis and in this respect St. Patrick's constitutes an important link in our preventive work.

Sixteen cases were admitted to Cappagh open-air Hospital, Dublin. Of these ten were females and six males. During the same period three males and three females were discharged. These were all cases of joint tuberculosis requiring prolonged treatment under open-air conditions for which there are no facilities in the city at present. The need of such an institution to serve the city and the south of Ireland generally is great and it is to be hoped that suitable premises for this purpose may be acquired in the near future. Such an hospital could also serve as a convalescent home for delicate and pre-tuberculous children for which there is also a great need.

In addition to those sent to Cappagh 35 patients were admitted to the local Infirmaries. Of these seven were adults and 28 children. The latter were mostly gland cases requiring surgical treatment. A few were admitted for supervision pending transfer to Cappagh. Thirty patients (six adult and 24 children) were discharged from the hospitals.

Examination of sputum is carried out in the laboratory of the tuberculosis clinic. 375 specimens were examined, of which 90 were found to contain tubercle bacilli, while 285 were negative. Of the 375 specimens examined, 68 were submitted by medical practitioners. About twelve months ago arrangements were made for the free examination of such specimens for practitioners in order to assist them in the diagnosis of suspected pulmonary tuberculosis. Supplies of outfits were accepted for this purpose by all the city Chemists, and stocks were also provided at the dispensaries for the convenience of doctors. The response has been disappointing, particularly in view of the very high proportion of advanced cases who are to be found amongst patients attending the tuberculosis clinic for the first time. It is not an exaggeration to state that sputum examination is a very important factor in correct diagnosis in patients presenting other suspicious symptoms. In some cases it is an invaluable aid. It is hoped, therefore, that the scheme will be more widely availed of in the future.

In all cases attending the clinic sputum examination is a routine procedure, and pocket flasks are issued to all those who are found to be positive. A register is kept of such cases and attention in regard to prevention is concentrated on them. Thirty-two flasks were issued during the year.

The number of notifications received during the year was 133. This covered the period from the 1st April to the 31st December. Prior to this year such notifications were for the period from the 1st April to 31st March following. Notifications for the previous five years were as follows :—

1925—26	...	110
1926—27	...	108
1927—28	...	73
1928—29	...	116
1929—30	...	179

X-Ray examinations are utilised for diagnostic purposes in cases presenting doubtful features and also for the purpose of estimating progress in pulmonary cases. All cases suggestive of bone or joint disease are submitted to X-Ray examination as routine. Forty-four such examinations were made during the year.

The number of home visits made by the Tubecrulosis Nurse was 252. A considerable amount of importance is attached to the home visiting of tuberculosis patients, for although in many cases little can be done for the patient himself a good deal of useful preventive work can be carried our by instructions as to the proper disposal of sputum and precautions to be taken by contacts. Unfortunately in many instances this work is negatived by the wretched conditions under which the patients live, particularly in the poorer parts of the City where overcrowding is very marked and a great many of the dwellings are in an insanitary condition. Ignorance of the nature of the disease is one of the principal factors in its spread and it is felt that no effort whould be spared in the effort to enlighten people about the danger from indiscriminate coughing and spitting, the use of intecfed utensils, bed clothes, and the value of fresh air and sunlight in combatting this disease. Very often, of course, it is a case of the seed falling upon barren ground, but nevertheless it is felt that the visits of the tuberculosis nurse are of very great importance from the preventive point of view for the reasons outlined above. It is particularly in the case of patients with positive sputum that supervision is called for and it is largely upon this class that our efforts are concentrated. Dramatic results are not to be expected in dealing with a disease such as tuberculosis. The most that can be looked for is a steady improvement in the death rate, and a gradual decrease in the number of cases which arise each year.

Before concluding this section a brief reference to one or two of the principal means of spread of tuberculosis may not be out of place. At the outset it is necessary to differentiate between the adult and juvenile types of the disease—the former is the result of direct infection from a previously infected person, the latter mainly the result of drinking infected cow's milk.

Of the two it may be said that the adult type is the more serious. This type, as has been said, is acquired as a result of inhaling the germs of the disease when in fairly close contact with an infected individual who coughs or sneezes without taking precautions to protect those about him by covering his mouth. Infection may also occur through the inhalation of germ-laden dust which has previously been infected by indiscriminate spitting. There is very strong evidence that the type of disease which manifests itself in late adolescence and early adult life, is, in reality, acquired in early childhood, that it lies dormant in the system until the individual begins to experience the stress and strain of adult life. If these prove too great for him then there is a great risk that the disease will make its appearance. In the light of this knowledge the important thing, from the administrative point of view, is the protection of young children from human infection by the isolation of the patient. Great difficulty is still experienced in many cases in prevailing upon patients to avail of institutional treatment and while this continues to be the case we must not expect any material improvement in our mortality figures. Another important point is the control of spitting. Coughing and spitting are the great source of adult tuberculosis, while our social habits remain such that both are practised indisrciminately tuberculosis will always be a serious problem.

The juvenile type of the disease is characterised in the main, by the situations attacked (the glands, bones and joints, rather than the lungs) and chronic course which the disease pursues and its tendency towards recovery with the provision of adequate care and attention. It is accepted that the majority of juvenile tuberculosis is due to drinking infected cow's milk in the raw state. While it is true that a certain definite proportion of the milch cows in this country are infected with tuberculosis there is no reason to believe that they are more heavily or more extensively infected than the herds of other countries. Milk is always, therefore, a potential source of danger, particularly for very young children (i.e., those under two years of age). In such children the disease tends to assume the more serious forms of peritonitis and meningitis, both of which are nearly always fatal. From three to four years onwards the child becomes more resistant to the disease.

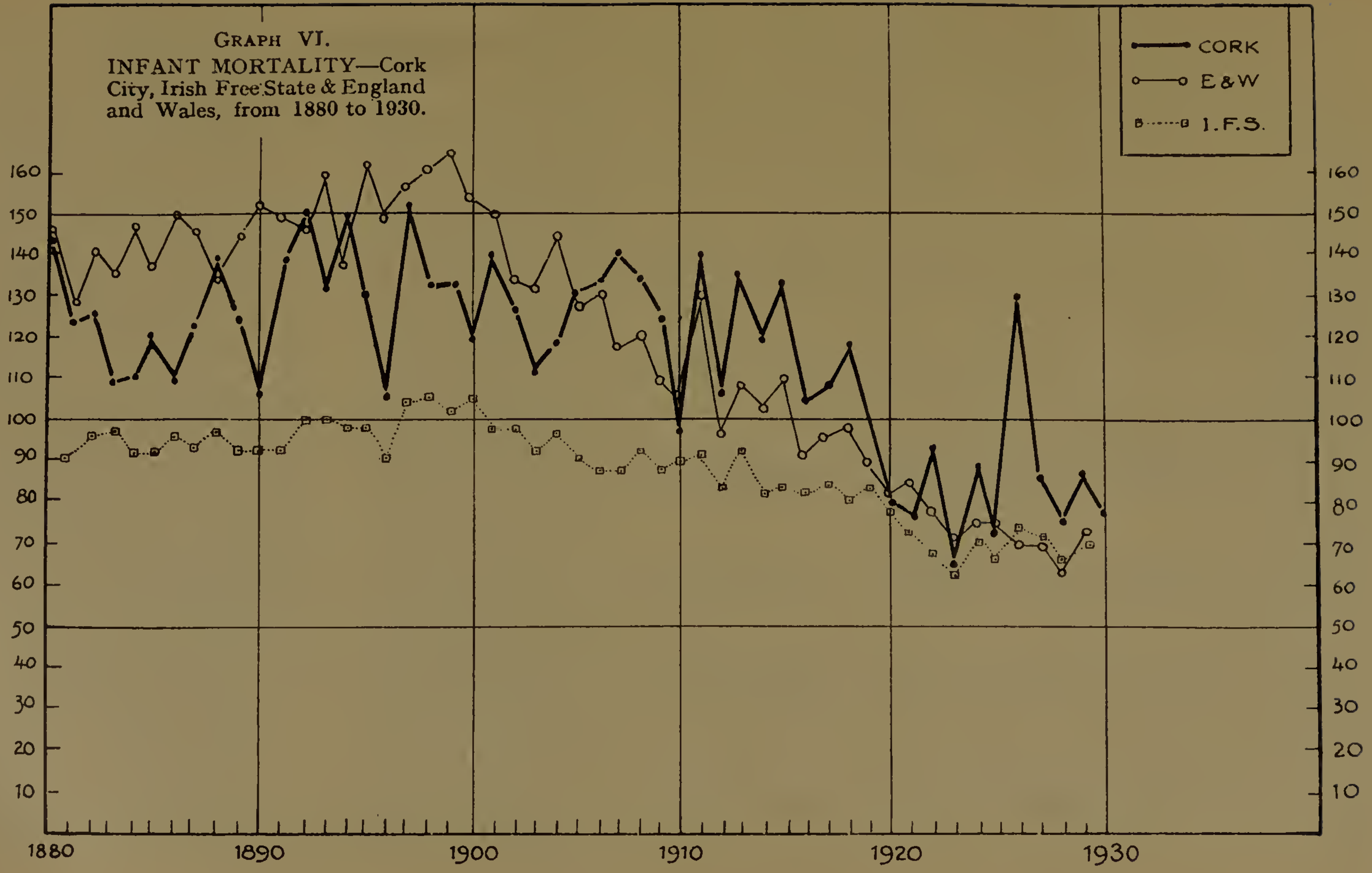
It may be said therefore that raw milk should never be given to young children. It should in all cases be first boiled in order to destroy any tubercle bacilli which it may contain. As a result of boiling, the milk loses certain very important nutritive factors which must be replaced by the administration of fresh fruit juices (such as orange-juice) and Cod Liver Oil. It is not possible to say at what age raw milk may be given as everything depends on the source and the character of the producer. If there is any doubt at all it is safer to continue boiling rather than incur the risk of such a very serious disease as tuberculosis. At the present rate of progress it will be a very long time, if ever, before tuberculosis is eradicated from all the herds of the country and, since in the meantime, there is no State supervision over the so-called " tubercle-free " herds one can only recommend the public to carry on with the precautions which have been alluded to above.

V.—MATERNITY AND CHILD WELFARE.

(A) INFANTILE MORTALITY.

The number of deaths of infants under one year of age was 155, equivalent to a rate of 77 per 1,000 live births. Table 9 shows the number of deaths each year and the mortality rate for Cork City from 1878 to 1930. On Table 16 is shown the comparative infantile death rates for Cork city, Irish Free State and England and Wales from 1881 to 1930. Notwithstanding the heavy epidemic of diphtheria which prevailed throughout 1930 and the epidemics of measles and whooping cough during the earlier months of the year, the infantile mortality over the whole period was within very moderate limits, the figure of 77 per 1.000 births was the third lowest during the whole period from 1881. The lowest figure reached was 66 in 1923.

The general trend of infantile mortality is shown diagramatically in Graph VI. The most striking feature of this Graph is the marked decline which has taken place in England and Wales from 1900 onwards as compared with both Cork and the Irish Free State. The curve for Saorstat Eireann exhibits, however, a comparatively low mortality over



GRAPH VI.
INFANT MORTALITY—Cork City, Irish Free State & England and Wales, from 1880 to 1930.

Table 16.—Infantile Mortality, Cork City, Irish Free State and England and Wales from 1881 to 1930.

Year	Cork	I.F.S.	E. & W.	Year	Cork	I.F.S.	E. & W.
1881	124	89.4	139	1906	133	88.0	132
1882	127	94.9		1907	139	88.5	118
1883	109	95.9		1908	134	91.2	120
1884	110	91.9		1909	125	87.3	109
1885	120	91.3	145	1910	96	89.1	105
1886	110	93.9					
1887	123	93.6		1911	139	91.3	130
1888	139	96.0	136	1912	107	82.1	95
1889	125	92.0	144	1913	136	93.1	108
1890	106	91.6	151	1914	119	81.0	105
				1915	132	85.2	110
1891	138	91.4	149	1916	105	81.3	91
1892	150	99.9	148	1917	108	84.0	96
1893	132	99.8	159	1918	118	80.2	97
1894	150	97.4	137	1919	100	84.4	89
1895	131	98.0	161	1920	79	77.5	80
1896	106	91.0	148				
1897	152	104.0	156	1921	76	72.6	83
1898	131	105.2	160	1922	93	68.9	77
1899	133	103.2	163	1923	66	66.4	69
1900	120	105.3	154	1924	87	71.6	75
				1925	74	67.9	75
1901	139	95.5	151	1926	130	74.4	70
1902	127	95.5	133	1927	87	70.8	70
1903	112	92.2	132	1928	76	67.9	65
1904	118	95.8	145	1929	81	70.4	74
1905	131	90.2	128	1930	77	—	—

the whole period with a steady downward trend at the same time. The curve for Cork City is characterised by marked fluctuations, but the trend is definitely and decidedly downward. This trend is particularly marked from the year 1905 onwards and continues until 1926 when there is a marked rise followed by a further drop. The principal contributing diseases to the 1926 peak (when 220 infant deaths occurred) were—measles 75, diarrhœa 53, whooping cough 32, and diphtheria 18. The mortality in 1892 was 150, as compared with 77 last year—a reduction of nearly one-half.

(B) NOTIFICATION OF BIRTHS).

The Acts bearing on this subject are the Notification of Births Acts 1907, which was adopted by the Corporation in September, 1922 and the Notification of Births (Extension) Act, 1915. These Acts place an obligation on certain individuals to notify to the Medical Officer of Health within thirty-six hours, births which have occurred in the area. The object of the Acts is to enable the Local Authority to afford advice and assistance to parents on the care and upbringing of children.

The number of births which were notified to the M. O. H. during the year amounted to 1,182 ; during the same period, 1,998 births were registered by the District Registrars. 59.3 per cent of the total births were therefore notified to the Local Authority.

(C) MATERNAL MORTALITY.

Maternal Mortality is defined as the number of deaths of mothers occurring during the year as a direct result of pregnancy or childbirth, per 1,000 births occurring during the same period. It has been the subject of much concern in several countries for many years past, principally because there has been no reduction comparable to that which has been effected in other directions. The figure for Cork City for 1930 was 1.83 which, in view of the current mortality in other districts, may be regarded as a very satisfactory one. During the same period the figure for Saorstat Eireann was 4.24, Dublin, 3.70, Limerick, 4.68, and Waterford, 4.28, For England and Wales in 1929 the figure was 4.33. In 1929 the rate in Cork was 2.24 which was also a satisfactory showing, but prior to that year, as will be seen by reference to the table below the mortality due to pregnancy was excessive, so that too much reliance must not be placed on the figures for the last two years as indicating any permanency in the present satisfactory position. This Table has been kindly compiled up to the year 1929 by the Registrar General. Our own present arrangements for collecting death returns will enable us to bring this Table up to date in future years.

Table 17.—The number of deaths of women directly attributable to or associated with pregnancy or childbirth during each of the years 1924—30 together with the rate per 1,000 births during each of these years, for the City of Cork. (Corrected for Births and Deaths in public institutions.)

Year	Deaths from Puerperal Septic Diseases.		Deaths from accidents of Pregnancy or Childbirth.		Total Deaths from Puerperal Septic Diseases and accidents of Pregnancy or Childbirth.		Deaths from causes associated with Pregnancy or Childbirth (not included in foregoing.)		Total Deaths caused by, or associated with Pregnancy or Childbirth	
	No.	Rate per 1000 Births.	No.	Rate per 1000 Births.	No.	Rate per 1000 Births.	No.	Rate per 1000 Births.	No.	Rate per 1000 Births.
1924...	5	2.55	6	3.05	11	5.60	1	0.51	12	6.11
1925...	5	2.54	5	2.54	10	5.08	1	0.51	11	5.59
1926...	3	1.66	8	4.42	11	6.08	—	—	11	6.08
1927...	5	2.74	6	3.28	11	6.02	—	—	11	6.02
1928...	3	1.64	9	4.92	12	6.56	1	0.55	13	7.11
1929...	—	—	4	2.24	4	2.24	—	—	4	2.24
1930...	1	0.46	3	1.37	4	1.83	—	—	4	1.83

In view of the great advances which have been made within recent years in medical science the persistance of a high maternal mortality rate is a grave reflection on all parties concerned with the maternity services, and there is no branch of preventive medicine which calls for more urgent attention in order to secure, if possible, that such a perfectly natural function as childbirth should no longer be fraught with the risk which invests it at present. So far as the Local Authority is concerned in the matter action is confined to supervision of midwives to ensure that their practice is carried out along lines in conformity with present knowledge. In this connection it might be well to consider the advisability of instituting special courses for practising midwives, but in view of the very limited hospital accommodation in the City this does not appear to be practicable at present.

(D) SUPERVISION OF MIDWIVES.

Number of Midwives on Register	90
Qualifications—	
(a) Certificate of C.M.B.	39
(b) Other recognised certificates	31
(c) Untrained	—
Number of Inspections	161
Number of suspensions for 24 hours on account of contact with cases of infectious disease	10
Number of Midwives struck off roll of C.M.B. ...	1

Under the provisions of the Midwives Acts of 1902 and 1918 no woman is entitled to describe herself as a midwife or to carry on the practice of a midwife unless she shall have been admitted to the Roll of the Central Midwives Board. The Act of 1902 provides for any woman to be admitted to the Roll under three distinct conditions, viz. :

(1) Upon producing evidence, satisfactory to the Board, that at the passing of the Act, she had been, for at least a year, in bona-fide practice as a midwife, and also a certificate of good moral character.

(2) Upon producing a certificate in midwifery from some lying-in or other institution approved by the C. M. B.

(3) Upon producing a certificate obtained from the C. M. B., after having undergone a course of training prescribed by the Board, and after successfully passing the examination to be instituted.

So far as can be ascertained there are now no midwives practising in the City who are qualified to do so under the first condition. On the other hand there are fifty-one who practice by virtue of certificates which were issued to them prior to the passing of the Act, by the local Maternity Hospitals, while only thirty-nine of the practising midwives in the City have passed the examination of the C. M. B. and hold the certificate of that Body. Since the passing of these Acts it is obligatory on all women who intend to practise midwifery to sit for the examination of the C. M. B., and to hold its certificate so that in the course of time the proportion of women who practise by virtue of the second condition will be eliminated.

As a result of the Inspections carried out during the year it may be said that as a whole, the general standard has been satisfactory, particularly amongst those midwives who hold the certificate of the C. M. B. Amongst other midwives also the general standard of cleanliness and practice was found to be satisfactory. There were however, some exceptions calling for cautionary letters, and in one instance it was found necessary to report the midwife to the Central Midwives Board for malpractice and negligence which came to light as a result of an investigation into the death of a mother from Puerperal Fever and of her baby. The midwife's name was removed from the Roll of Midwives by the Central Midwives Board.

It subsequently came to the notice of the Department that this midwife was carrying on her practice, and a prosecution was undertaken on the grounds of (a) failure to notify births (two counts), and (b) for carrying on the practice of a midwife after the removal of her name from the Roll, contrary to the Acts of 1902 and 1918 (five counts). Convictions were obtained on each of the two former counts, but, owing to the fact that it was impossible to get the women concerned to admit that they had paid the midwife for her services no conviction could be obtained under any of the latter counts. Section 1 (2) of the Act of 1902 provides that " no woman . . . . shall habitually and for gain, attend any woman in childbirth . . ., etc. and the phrasing is unfortunate in this respect that it provides a loophole, in cases such as this, whereby the provisions of the Act may be negatived. In this particular case the midwife concerned had already been previously cautioned by the Board in connection with a case of Puerperal Fever arising in her practice. Legislation is now pending which, it is hoped, will render cases such as this impossible in the future.

(E) WORK OF THE MATERNITY AND CHILD WELFARE SCHEME.

The scheme is at present undergoing a period of transition. Formerly the work was carried out entirely by the Cork Child Welfare League, a voluntary body to whom the citizens generally are greatly indebted for inaugurating and carrying on in spite of great difficulties a scheme which was the first of its kind in the city and of which it may be said that the results of its work are reflected in the marked reduction in infant mortality which has characterised the statistical tables during its period of existence. The League depended for its activities upon voluntary subscriptions, but the major portion of its funds were provided for by a grant from the Corporation. The League provided one whole-time nurse, and in addition had an arrangement with the two local maternity hospitals whereby it paid for the services of two additional nurses (whole-time) rent for the use of the hospital premises as clinics and a small fee for the doctors who attended these clinics.

The first step in the evolution of the present scheme came with the appointment of the M. O. H. as Medical Adviser to the Executive Committee of the League. The next stage came with the proposed appointment of an Assistant M. O. H., whose duties were the administration of certain clinical departments of the Public Health services, one of which was the Maternity and Child Welfare Scheme working in conjunction with the League. The Assistant M. O. H. is now gradually undertaking the clinical work which was formerly carried out by the staffs of the hospitals. In addition, the scheme proposed to undertake the responsibility of providing for the necessary nursing service in connection with its work and relieving the League of the necessity of providing the salaries for three nurses. During the year two of the three nurses resigned their posts and the vacancies so created were filled by the City Manager on recommendations made by the Local Appointments Commission. Finally, the scheme included the provision of a large Central Clinic in Tuckey Street for the examination of mothers and children. This clinic has now actually been constructed in the premises formerly occupied by the Carnegie Free Library. It is a very great advance on either of the premises which were formerly used for the purpose and it may be anticipated that when it comes into commission it will act as a recognised educational centre in regard to the hygiene of infant life.

It must be borne in mind that the function of a Child Welfare Scheme is not to cure sick children, but, rather, by imparting the necessary information to mothers, to secure that children will be brought up along lines which will ensure that they are protected against avoidable diseases. In this respect therefore,, it is to be stressed that it is no part of a Child Welfare Clinic to replace the functions exercised by the general hospital in the treatment of disease.

The work of the Child Welfare League during the past year is set out in the Annual Report of that body. So far as the actual nursing services are concerned, the work may be summarised as follows :—

(a) Visits to expectant mothers—

(i) First Visits	366
(ii.) Subsequent Visits	502

(b) Visits to Infants under one year—

(i.) First Visits	1,353
(ii.) Subsequent Visits	7,627

In addition to the above there were a large number of visits made by mothers and children to the different clinics, but since these have not been differentiated from those which were made merely for the purpose of receiving supplies of milk and infant foods they are not included here.

VI.—CONTROL OF FOOD SUPPLIES.

Prior to the year 1924 the inspection of meat was carried out in the City by the Meat and Markets Inspector, and an assistant. neither of whom were properly qualified for this work. In 1924 the present Chief Veterinary Officer (Mr. S. J. R. Cussen) was appointed to the position of Food Inspector under the Public Health Acts. During the years 1926 and 1927, the City Commissioner, with a view to consolidating the Veterinary services within the Borough, determined the temporary employment of two Veterinary Inspectors, one of whom acted as Inspector under the Diseases of Animals Acts and the other as Inspector under the Dairies, Cowsheds and Milk Shops Order, and appointed Mr. Cussen to the positions. In 1927, therefore, for the first time, the veterinary work of the Borough came under the control of one whole-time Veterinary Officer, and this undoubtedly was a step in the right direction. The old Board Room at the Corn Exchange was provided as headquarters for the Veterinary Department, and many very notable improvements have marked the years since this Department was first established on a proper basis. The principal problems which confronted the Veterinary Officer on his appointment were the re-organisation of the meat inspection service and the supervision of the milk supplies to the City.

Hitherto there had been no inspection in the bacon factories. A system was organised whereby all carcases affected with disease were detained for inspection. Daily visits were paid for the purpose of examining these carcases. The Cork factories were the first in Ireland to receive such attention, and as large quantities of meat were destroyed very considerable expense was incurred by them until the passing of the Agricultural Produce (Fresh Meat) Act of 1930 brought them relief. Prior to the passing of this Act quantities of fresh meat and pork were being exported to the markets of England and Scotland from slaughterhouses all over the country and without any veterinary supervision. The consequence of this system was that considerable amounts were seized and condemned on arrival at the cross-Channel markets, numerous complaints were made and great harm was done to the trade. These conditions have now happily been changed and no meat can be exported except under licence and after very rigid inspection. Complaints have now dwindled to entirely negligible proportions, and a lucrative trade has been built up from which the city derives very material benefit.

Butchers and provision shops were also frequently inspected and the meat closely examined for evidence of disease. This has applied particularly to the latter shops in which a special examination was made of pigs' heads for evidence of tuberculosis. This examination applied chiefly to Irish Heads. the produce of bacon factories outside the City of Cork. Tuberculous heads were frequently detected and destroyed, and prosecutions instituted against the persons who had exposed them for sale. As a result of these proceedings provision merchants came to realise that the sale of such products was detrimental to their business and insisted that a veterinary certificate should accompany all such consignments. This necessitated the appointment of veterinary inspectors in the outside factories so that as a result of our activities inspection was introduced to factories outside our area.

The existing milk regulations were tightened up considerably by enforcing the provisions of the Dairy Orders which heretofore had been administered with some laxity. Facilities were also provided for making bacteriological examinations of milk.

In 1930 six additional whole-time Veterinary Officers were appointed under the Agricultural Produce Act referred to above. These inspectors were also authorised by the Corporation to exercise and perform the powers and duties conferred and imposed upon a Sanitary Officer by the Public Health (Ireland) Act of 1878, and the Acts amending and extending same. Also the powers and duties of an inspector under the Dairies, Cowsheds and Milk Shops Order 1908, and the statutes relating to the Contagious Diseases of Animals. These officers are under the direction of the Chief Veterinary Officer. In order to accommodate this staff the premises at the Corn Exchange have been reconstructed to provide separate offices for the C. V. O. and his assistants as well as a Laboratory and a special department for a stock of guinea pigs for the detection of tubercle-infected milk.

MEAT INSPECTION.

Meat and offals are prepared for human consumption in (a) slaughterhouses, (b) triperies, and (c) sausage factories. (a) Slaughterhouses—there are 28 within the city boundaries which include three bacon factories and one knacker's yard. Six of these slaughter houses have been registered by the Department of Agriculture under the Agricultural Produce (Fresh Meat) Act, 1930, for the export of fresh meat. (b) Triperies.—Thirteen of these premises are registered. In them the stomachs and intestines of cattle and sheep are manufactured into tripe and casings. There is also manufactured locally a kind of blood sausage known as "drisheen." So far as can be ascertained this industry appears to be peculiar to Cork. There has been a considerable improvement in recent years in the handling and storage of tripe and in the material used for the manufacture of drisheens.

(c) Sausage factories.—There are 12 premises in the city in which black puddings, sausages and white puddings are manufactured. It has been noticed in a few of the smaller factories that the mincing machines are not cleaned immediately after use. We have no power to deal with persons who fail to keep appliances in a cleanly condition, and it will be necessary to introduce a bye-law in the near future to deal with such cases.

During the year the quantity of meat, including offals, found unfit for human consumption in slaughter house and bacon factories and which was treated in such a way as to render it incapable of being used as food for human consumption was as follows :—

(A) In slaughterhouses :—

Beef	...103,282 lbs.
Veal	... 1,281 ,,
Mutton	... 2,066 ,,
Pork	... 55,850 ,,

Tuberculosis was responsible for 77,01 per cent. of the beef, 74.08 per cent. of the veal, and 35.92 per cent of the pork condemned.

(B) In Bacon factories—

Pork	...145,745 lbs.

78.03 per cent. of this amount was found to be affected with tuberculosis. It was principally in the premises of the registered exporters that this diseased meat was encountered and dealt with according to the provisions of Article 37 of the Agricultural Produce (Fresh Meat) Act, 1930.

(C) Surrendered by owners.

The amount of meat surrendered by owners and dealt with in accordance with the provisions of the Public Health (Ireland) Act, 1878, was as follows :—

Tuberculous beef	106 lbs.
Decomposed beef	16½ ,,
Decomposed bacon and pigs' heads	13,396 ,,
Unsound poultry	1½ ,,
Decomposed fish	161½ ,,

The pigs' heads surrendered were of Danish origin.

(D) The amount of unsound meat found exposed for sale and seized by the Veterinary Officers was as follows :—

Tuberculous beef	469½ lbs.
Decomposed beef	85 ,,
Decomposed mutton	15½ ,,
Tuberculous Pork	5¼ ,,
Decomposed bacon	1,360¼ ,,

Prosecutions were instituted against persons in whose possession the unsound food was found and convictions were obtained with fines amounting to the total of £7 6s. 6d. Prosecutions were also instituted against persons for slaughtering in unlicensed premises and for breaches of the by-laws relating to the conveyance of meat through the public highway. Convictions were obtained with fines to the total amount of £1 15s. 6d.

During the year 937 inspections were made of meat markets, 9,228 of meat shops, 2,182 of hawkers' stands, 2,239 of triperies, 2,181 of sausage factories, and 6,003 of slaughter houses.

While it is true that there has been a very great improvement in recent years in the services connected with the supervision and control of the handling of the meat supply to our city, a great deal still remains to be accomplished. At the present time by far the greater proportion of the meat which is sold in the city enters it from slaughterhouses outside the borough boundary, over which we have no control. On account of the onerous duties imposed on them by the provisions of the Agricultural Produce (Fresh Meat) Act it is impossible for our staff of inspectors to cover all the meat as it lies exposed for sale and we have had to rely upon the deterrent effect of prosecutions which, at the best, is an unsatisfactory proceeding, especially from the point of view of an innocent vendor who may unwittingly expose unsound meat for sale. It will be necessary, therefore, in the near future to consider other methods of supervision. A system of central meat inspection in conjunction with stamping appears to meet most of the difficulties which we encounter at present. The only alternative to this, and perhaps the ideal solution, is the establishment of a municipal abattoir in which all meat sold in the city must be slaughtered. Either of these methods would simplify our problem enormously and would definitely ensure a sound and wholesome meat supply for the city, and would obviate the necessity for legal proceedings.

Another matter which calls for reform is the unsightly and unhygienic manner in which meat is handled during transit from the slaughter-houses and while being transferred from the carts to the butchers' shops. It is common knowledge that the carts are mostly the reverse of clean and that the cloths with which the meat is covered are in the same condition. Apart from prosecutions for having meat uncovered during transit we have no legal powers for dealing with these conditions, and it should be unnecessary to seek them. It seems, however, that we will have to do so. All meat exported from this country has to be completely covered with clean muslin and in England those who handle it are compelled to wear clean overalls and special headgear to prevent contact between the meat and the butcher's hair. These are very necessary precautions. Of the similar precautions taken here the less said the better.

With one or two exceptions, our butcher's shops are hopelessly antiquated. The old-fashioned open front still persists which allows of the exposure of the meat to all the dust, dirt and contamination of the street. This condition of affairs may be seen all over the city, and, strangly enough, does not appear to call forth much comment. These are matters which call for reform from within the trade itself rather than from the Sanitary Authority, but in the interests of the health of the community it will be necessary to press for the requisite legal sanction to enforce them if they are not forthcoming as a result of voluntary action.

SUPERVISION OF MILK SUPPLIES.

The chief enactments under which control of the milk supplies is exercised are (a) The Public Health Acts, (b) the Dairies, Cowsheds and Milk Shops Order, 1908, and (c) the Bovine Tuberculosis Order, 1926.

The Public Health (Ireland) Act, 1878, provides, inter alia, for the inspection and examination of milk, exposed for sale, or being conveyed for sale, or deposited in any place for the purpose of sale, and in preparation for sale and intended for the food of man. It also provides for the seizure and destruction of milk which appears to be diseased, or unsound, or unwholesome, or unfit for the food of man.

The Dairies, Cowsheds and Milkshops Order provides for (a) the registration within the Local Authority of cowkeepers, dairymen or purveyors of milk, (b) the inspection of cows in dairies, (c) prescribing the lighting, ventilation, cleansing, drainage and water supplies of dairies and cowsheds, (d) securing the cleanliness of milk stores, milk shops and milk vessels, (e) prescribing precautions to be taken for protecting milk against contamination or infection.

The Bovine Tuberculosis Order aims at lessening the amount of tuberculous milk reaching the consumer.

812 persons are registered as milk vendors, of whom 473 sell milk from shops and the remaining 329 from vans.

During the year 6,030 inspections were made of milk shops and 1,271 of milk vans. Inspection extended to the provisions made for the cleanliness of the shops, vans and utensils, the manner in which the milk was stored and handled, and to the cleanliness of the persons engaged in the handling of the milk. Forty-three visits were made to cowsheds These were found to be in a satisfactory condition of cleanliness. 152 milch cows were inspected. A thorough clinical examination was made of each animal, and milk samples were taken for microscopical examination. In the case of five of these samples acid-fast bacilli were found which were suggestive of tubercle. The tuberculin test was applied to the cows from which the suspicious samples were taken ; three reacted positively and two negative reactions. None of the five cows showed clinical evidence of tuberculosis of the udder.

Samples of milk were taken from the three positive reactors and forwarded to the research laboratory of the Department of Agriculture for the application of the biological test. In each case the result was negative. Although affected with tuberculosis the cows did not come within the scope of the Bovine Tuberculosis Order. The animals in question have been isolated and are now under our observation. Milk samples are taken from them periodically.

239 notices were issued under the Dairies, Cowsheds and Milk Shops Order. They have been satisfactorily complied with. The serving of these notices coupled with the closer supervision of the veterinary staff has been responsible for the greater attention which has been paid to the cleanliness of milk shops and vans and for the better manner in which milk is handled and protected from contamination. Thirty-six prosecutions were instituted against persons who failed in their obligations under the Dairy Order, convictions were obtained with fines to the total amount of £5 17s. 6d.

For some time past we have been gradually building up a laboratory service in connection with the control of milk supplies in the city. Limitation of staff caused considerable restriction in this very important branch of control, but with the recent additions to the personnel of the Veterinary department much more headway has been made. Up to the present the aim has been the detection of dirt and manurial contamination of milk through the filter pad in conjunction with the reductase fermentation and microscopic tests. When a sufficient stock of guinea pigs has been accumulated it is intended, in addition, to carry out the biological test for tuberculosis. This will enable us to save valuable time and will be a very much more satisfactory procedure than the present one which involves sending the samples to Dublin for examination.

During the year 412 samples of milk were taken for bacteriological examination. The tests employed were (a) the sedimentation (or dirt) test, (b) the Reductase Test, (c) the Fermentation Test, and (d) the Microscopic Test.

(a) The Dirt Test.—This is a naked eye test. A certain quantity of milk is forced under pressure through a cotton wool pad and the latter is then examined for the presence of visible dirt. The chief value of this test lies in the fact that by means of it one is able to demonstrate beyond any possible doubt to the producer himself the presence of dirt in his milk. The pads will separate dirt which in the ordinary course would remain in suspension in the milk and would otherwise never become apparent to the naked eye, even on the milk standing. Furthermore the pads can be filed away for future reference and in this way a rough check is to hand which enables one to judge the improvements (if any) effected in the handling of the milk. 412 samples of milk were submitted to this test during the yeas and the results were classified as under :—

Very dirty	58
Dirty	156
Fairly clean	118
Clean	72
Very clean	8
Total	412

It will be seen that over 50 per cent of the samples were either dirty or very dirty while, at the other end of the scale, less than 20 per cent. were either clean or very clean. Obviously, therefore, there is still room for very considerable improvement in the methods which are employed for handling the milk which is at present coming into the city for consumption.

(b) The Reductase Test.—This test is performed by the addition of 1 cubic centimetre of a standard solution of methylene blue to 40 cubic centimeteres of the milk under examination. The immediate effect of the addition of the methylene blue is the development of a marked blue colouration in the mixture. The latter is then placed in a water-bath which is maintained at a temperature between 100° F and 104° F and the resultant change in colour noted. As a result of the action of the bacteria which are present in the milk the mixture gradually loses its colour and the speed at which this decolourisation takes places is used as an index of the amount of bacterial contamination present. The following are accepted standards used in connection with this test :—

1.—Change of colour in 20 minutes or less—over 20,000,000 organisms per c.c. (Grade IV. Milk).

2.—No change in 20 minutes, but change in 2 hours—4,000,000 to 20,000,000 organisms per c.c. (Grade III. Milk).

3.—No change in 2 hours, but change in 5½ hours—500,000 to 4,000,000 organisms per c.c. (Grade II. Milk).

4.—No change in 5½ hours—less than 500,000 organisms per c.c. (Grade I. Milk).

On the basis of this test the classification of samples examined during the year was as follows :—

Grade I.	233
Grade II.	146
Grade III.	23
Grade IV.	10
Total	412

(c) The Fermentation Test.—In this test the milk is placed in the water bath at a temperature of 100° F. to 104° F. for 24 hours. The fermentation is then noted and the clot classified as follows :—

1.—Normal jelly-like clot—presence of normal bacteria only.

2.—Cheesy (clot broken up and quantity of turbid fluid present)—presence of peptonising bacteria indicative of contamination by dust from cow-sheds, etc.

3.—Gassy (large number of gas bubbles together with disintegrated clot and turbid fluid)—presence of manurial contamination.

The classification of samples examined according to this test was as under :—

(1) Normal Clot	228
(2) Cheesy Clot	97
(3) Gassy Clot	87
Total	412

(d) The Microscopic Test.—In addition to the tests outlined above all samples of milk were submitted to microscopic examination. The milk is first centrifuged and a portion of the resultant deposit is transferred to a slide and strained by the Ziehl-Nielson method. The main object of this test is the detection of bacilli of the acid-fast group, to which the tubercle bacilli belong. The following is the result of the examinations :

(1) Acid-fast bacilli	29
(2) Streptococci	7
(3) Pus cells	12
(4) Free from (1), (2) and (3) ...	364
Total	412

When, as a result of the various tests outlined above, attention is directed to a milk supply in which there is evident careless or defective production or when microscopic examination reveals the presence of acid-fast bacilli (or the other organisms included in this test) our findings are reported at once to the County Medical Officer of Health, who puts the machinery at his disposal into action. The premises of the producers are inspected by the veterinary officer for the Rural Area. This is not always effective. Failure is due largely to the fact that the provisions under the existing legislation relating to cleanliness of cows, cowsheds, milk utensils and milkers have never been seriously enforced in the past by those directly responsible for their administration. The result of this default is that, while there is a high standard of cleanliness maintained in those cowsheds and dairies situated within the city boundaries, the reverse is the case in the vast majority of premises outside them, from which the great bulk of city milk supply is drawn. There are some notable exceptions, and milk of the highest standard is at present being produced in a few localities in the rural area. There is a great demand for such milk and it is able to fetch a higher price in the open market than that of the general supply.

Milk is the most important food at our disposal—next to water it is our greatest necessity—it is necessary, therefore, that every precaution should be taken to ensure that it is of the highest possible degree of purity. Existent legislation does not confer this power on us, and reform is urgently needed which will enable the Local Authority to insist on certain definite standards being maintained in order to protect the population from the ill-effects of contaminated or adulterated milk. Until such powers are forthcoming and until the general standard of our milk supply has been raised considerably above its present level no general recommendation can be issued for its extended use as a foodstuff for children or adults.

FOOD AND DRUGS ACTS.

Prior to the year 1922 these Acts were administered by members of the R.I.C. From 1922 to June, 1925, they were administered by the Sanitary Inspectors of the Public Health Department and on the latter date their duties were taken over by the members of the Garda Siothchana, who have since been administering the Acts in a very satisfactory manner.

MILK.

Table 18.—Showing the number of samples of milk submitted for Analysis during the year 1930, and the results thereof.

Quarter ending	No. of Samples	Genuine	Adulterated.
March 31st, 1930 ...	139	125	14
June 30th, 1930 ...	158	137	21
Sept. 30th, 1930 ...	138	129	9
Dec. 31st, 1930 ...	110	109	1
Totals ...	545	500	45

Table 19.—Showing results of proceedings against vendors of adulterated samples and Fines imposed.

Extent and form of Adulteration	Fines Imposed.	Observations.
Deficient in Milk Fat 26% ...	—	Dismissed
,, ,, ,, 8% ...	Fine 7/6 Costs 15/8	
,, ,, , 6% ...	—	Dismissed
,, ,, ,, 16% ...	Fine 7/6 Costs 15/8	
,, ,, ,, 25% ...	—	Dismissed
,, ,, ,, 8% ...	—	,,
,, ,, ,, 6% ...	—	,,
,, ,, ,, 16% ...	Fine 10/- Costs 15/8	
,, ,, ,, 11% ...	—	Dismissed
,, ,, ,, 6% ...	—	,,
,, ,, ,, 7 ...	—	,,
,, ,, , 13% ...	—	,,
,, ,, ,, 8% ...	—	,,
,, ,, ,, 8% ...	—	,,
,, ,, ,, 8% ...	—	,,
,, ,, ,, 20% ...	—	,,
,, ,, ,, 13% added water, 11.8% ...	—	,,
Deficient in Milk Fat, 11% ...	Fine 2/6	
,, ,, ,, 9% ...	—	Dismissed
,, ,, ,, 18% ...	—	,,
,, ,, ,, 6% ...	—	,,
,, ,, ,, 11% ...	Fine 7/6 Costs 15/8	

It will be seen that, so far as milk is concerned, the administration of the Foods and Drugs Acts is in a very unsatisfactory condition and is a source of grave uneasiness from the point of view of those concerned with the public health. As has been stated in another section, milk is the most important single foodstuff at our disposal and it is essential that it should be sold to the public not only in the cleanest possible condition but also absolutely unadulterated so far as its constituent elements are concerned. This is all the more important when it is realised that milk is the staple diet of infants and young children, and very serious consequences may result if there is any tampering by way of abstraction of cream or addition of water. Over 75 per cent. of the prosecutions undertaken by the inspectors during the year were dismissed on the grounds that the milk was " as it came from the cow. " In one instance where the case was dismissed the milk was deficient in fat no less then 15 per cent., and in another 20 per cent. Cases such as these emphasise the fact that it is high time that the law was so amended that the public shall be protected against the unscrupulous dealer and that when milk is purchased an article should be supplied which will comply with certain definite standards.

Most cases of adulteration occur during the first two quarters of the year and in those in which there is no fraudulent intent they may be ascribed to carelessness on the part of the producers in not checking up the quality of their milk in regard to fat content, combined with improper feeding of the cattle. The necessary tests can be easily applied by the producer himself or they may be performed at the laboratory of the City Analyst for a nominal fee.

In over half the cases outlined in the above table there is evidence of abstraction of cream. Generally speaking it may be said that any deficiency over 10 per cent. may be regarded in this light, even allowing for seasonal variation in the amount of cream given by the individual cow. In mixed milks, such as comprise our city supply, the percentage deficiency should be considerably less than 10. Only very gross mismanagement would account for deficiencies in mixed milks of over 10 per cent, and when the deficiency ranges as high as 20 and even 26 per cent., the conclusion is forced on one that there has been deliberate abstraction of fat, notwithstanding any defence to the contrary which may be put forward.

BUTTER.

Table 20.—Showing number of samples of butter submitted for analysis during the year, and the results thereof.

Quarter ending	No. of Samples	Genuine	Adulterated
March 31st, 1930 ...	44	38	6
June 30th, 1930 ...	47	45	2
Sept. 30th, 1930 ...	38	34	4
Dec. 31st, 1930 ...	47	46	1
Totals ...	176	163	13

Table 21.—Showing the results of proceedings against Vendors of adulterated samples of butter and fines imposed.

Extent and form of Adulteration	Fines	Costs	Observations
Contained 2.8% Excess water ...	5/-	16/9	
„ 1.2% „ „ ...	5/-	6/3	
„ 2.0% „ „ ...	5/-	17/-	
„ 1.4% „ „ ...	3/6	17/-	
„ 1.2% „ „ ...	5/-	16/9	
„ 3.0% „ „ ...	5/-	16/8	
„ 3.7% „ „ ...	10/-	16/8	
„ 0.26% Boric Acid ...	2/6	6/2	

Six samples were found to contain Boric Acid as a preservative. Owing to the difficulties of procedure under the Public Health (S.E.) (Preservatives, etc. in Food) Regulations, 1928 it was not found possible to take proceedings against the vendors in the first five cases. These difficulties were surmounted later and a successful prosecution was instituted against the sixth vendor. A fine of 2/6 was imposed (see table above.)

MARGARINE.

Table 22.—Showing the number of samples of Margarine submitted for analsyis during the year, and the results thereof.

Quarter ending	No. of Samples	Genuine	Adulterated.
March 31st, 1930 ...	15	15	—
June 30th, 1930 ...	8	8	—
Sept. 30th, 1930 ...	10	10	—
Dec. 31st, 1930 ...	7	7	—
Totals ...	40	40	—

SPIRITS.

Table 23.—Showing the number of samples of spirits submitted for analysis during the year and the results thereof.

Quarter ending		No. of Samples	Genuine	Adulterated.
March 31st, 1930	...	10	10	—
June 30th, 1930	...	12	11	1
Sept. 30th, 1930	...	12	11	1
Dec. 31st, 1930	...	15	15	—
Totals	...	49	47	2

Table 24.—Showing results of proceedings against vendors of adulterated samples and fines imposed.

Extent and form of adulteration		Fines	Costs	Observations.
Contained 11.1% Excess Water	...	£1 0 0	£1 5 6	
„ 3.4% „	...	0 15 0	1 3 6	
Totals ...	...	£1 15 0	£2 9 0	

Table 25.—Showing number of miscellaneous samples submitted for analysis during the year and the results thereof.

Quarter ending		No. of Samples	Genuine	Adulterated.
March 31lts, 1930	...	45	45	—
June 30th, 1930	...	26	26	—
Sept. 30th, 1930	...	24	24	—
Dec. 31st, 1930	...	62	49	13
Totals	...	157	144	13

Table 26.—Showing details in regard to miscellaneous samples examined during the year

	Total		Cheese	Coffee	Cream	Cocoa	Cornflour	Dripping	Drugs	Flour	Jam	Lard	Pepper	Rice	Stout	Wine	Sugar	Tea	Sauce	Sweets	Buttermilk	Cakes	Vinegar
Mar. 31st, 1930	45	...	4	–	1	1	1	6	13	3	1	3	–	1	6	3	2	–	–	–	–	–	–
June 30th, 1930	26	...	4	–	1	–	–	2	5	–	3	2	–	–	3	1	3	1	1	–	–	–	–
Sept. 30th, 1930	24	...	5	–	4	–	–	–	4	–	3	1	–	–	1	1	3	2	–	–	–	–	–
Dec. 31st, 1930	62	...	2	3	1	1	–	3	5	–	1	2	1	–	–	–	1	2	–	4	1	27	8
	157		15	3	7	2	1	11	27	3	8	8	1	1	10	5	9	5	1	4	1	27	8

Table 27.—Showing results of proceedings against Vendors of adulterated samples and fines imdosed.

Extent and form of Adulteration	Fine	Costs	Observations.
Cakes contained 0.3% Boric Acid	2/6	16/-	
„ „ 0.1% „	2/6	16/-	
„ „ 0.13% „	2/6	16/-	
„ „ 0.1% „	3/6	16/2	
„ „ 0.08% „	2/6	16/1	
Vinegars „ 77% added water	5/-	15/11	
„ „ 166% „	5/-	15/9	

Summary of Examinations carried out during the year.

	Total	No. adulterated
Milk	545	45
Butter	176	13
Spirits	49	2
Margarine	40	—
Miscellaneous	157	13
Totals	957	73

The percentage of samples adulterated was 7.6, which is a very high figure.

VII.—WATER SUPPLY.

The total supply is drawn from two sources—(1) a horizontal well or tunnel approximately a quarter of a mile long driven through a layer of gravel some thirteen feet below the surface level adjacent to the river Lee ; (2) the river Lee.

(1).—The water taken from the gravel tunnel is generally classifiable as a potable water and is delivered to the clear-water basin without treatment ; it constitutes probably two-thirds of the total supply and mixes in the clear water basin with the water from source No. 2 after the latter has been filtered as described below. The mixture of waters from the two sources is chlorinated in the clear water basin by the addition of a measured quantity of chlorine gas. The quantity of chlorine varies with the condition of the water, and is fixed approximately bn the following criterion : the minimum dose which will give a noticeable ortho tolidine reaction for free chlorine after standing for half-an-hour. The sterilised water is pumped to the service reservoirs undergoing a certain amount of aeration in the pumping process. It is delivered from the reservoirs to the mains.

(2)—The water from source No. 2 (river Lee) comprises about one-third of the average total supply. This is an auxiliary to the main source (the gravel tunnel) and in favourable circumstances is not in use at all. The maximum demand on the river water is some one and a half million gallons per day, that is after a spell of dry weather when the yield of the tunnel is low. The water of the Lee is not drawn upon when the river is in flood since on these occasions the yield of the tunnel is sufficient in itself.

Under normal conditions the river water varies from clear to light yellow, and in this state is passed to the filters for treatment before delivery to the clear water basin. The treatment consists of the following processes :—(1) screening ; (2) dosage ; (3) mixing, and (4) filtration. Screening is in two stages and is designed to remove small floating matter which might tend to foul the filters to an unnecessary degree. After screening the water is dosed with a measured quantity of alumino ferric, which acting on the lime in the water produces a coagulent precipitate. The coagulent is thoroughly mixed with the water by passing through a turbulent race or chute from which it is discharged on the filter beds. The filtration process proper consists in percolation downwards by gravity at a carefully controlled speed through a bed of sand about three of four feet thick composed of graded materials. After filtration the wates flows to the clear water basin and is mixed with the main supply. The process is carried out by means of a Candy Rapid Gravity Filtration plant which was put into commission in June 1928. In that year also was established the first systematic bacteriological survey of the city water. An extensive system of examination was undertaken voluntarily by Dr. W. J. O'Donovan, of the Department of Bacteriology, University College, Cork, by arrangement with the Medical Officer of Health. This involved the examination on each of five days weekly (Monday to Friday) of samples from—

(a) The river above the intake ;

(b) The output of the Candy filtration plant ;

(c) The output of the gravel tunnel ;

(d) The laboratory tap water.

Each of these samples was subjected to the following examinations :—

(1) Cultivation of 100 c.c.'s in fractions in McConkey's broth for the quantative estimation of Bacillus Coli.

(2) Enumeration of number of organisms per c.c. growing on agar at 37° C. in 24 hours.

(3 Enumeration of number of organisms per c.c. growing on agar at 20° C. in 48 hours.

The standard aimed at was a water containing less than 100 organisms per c.c. and in which colon bacilli cannot be cultivated from a bulk of 100 c.c. It should be mentioned that in regard to bacteriological examination of water the colon bacillus is what is termed an " indicator organism." That is to say, its presence in water within certain limits is by no means a matter for concern, but if those limits are exceeded then its presence indicates some source of impurity or contamination which has to be sought for and dealt with. Excessive numbers of B. Coli might, for instance, be the first indication of typhoid contamination.

The following Table summarises the results of the survey :—

Table 28.

Source	Total No. of samples for year	BACILLUS COLI TEST. Minimum Bulk containing B. Coli. (percentage of total Samples)							Average No. of bacteria per c.c. per sample at 37°c.
		100c.c. —ve	100c.c. +ve	50c.c. +ve	10c.c. +ve	1c.c. +ve	0.1c.c. +ve	0.01c.c +ve	
River ...	245	—	—	—	4.5	42.4	42.5	10.6	1039
Sand Filter	237	3.0	2.1	20.7	40.9	27.4	5.5	—	45.1
Tunnel ...	243	4.5	0.8	23.0	44.0	21.8	4.5	0.8	169.8
Tap ...	245	76.3	4.0	13.1	5.7	0.8	—	—	19.7

A typical reaction in McConkey lactose broth was recorded as " positive " in the above figures, but in as many cases as possible this was confirmed by fermentation and indol tests.

Apart from their interest as the only existent figures of the continuous bacteriological examination of the City water the results were extremely useful in controlling the working of the system. The necessity for the additional precaution of chlorination was established beyond doubt and during the summer months adjustments of the amount of chlorine and alumino ferric precipitant were made as a result of the findings. The erection of a second chlorinating plant at the clear water basin was also advised, and subsequently carried into effect.

The most noteworthy feature of this period was the occurrence of B. Coli in 10 c.c. and 5 c.c. fractions of tap water samples in August. The total bacterial counts were low, ranging from 10 to 100 per c.c. Control samples from the reservoirs showed 100 c.c. B. Coli free in the high level and B. Coli present in 30 to 50 c.c. in the low level reservoir. The river was low (—8 to — 14 inches at the weir) and the river counts ranged as high as 1,600,000 per c.c. The reservoirs were due for cleaning at the time, and increased chlorination was advised. Conditions improved in September, but normal conditions were not restored until the end of October. Two factors were possibly involved—(1) contamination by sea gulls ; (2) the survival of colon group organisms in spite of chlorination when they are present in very large numbers.

In 1929, a systematic survey having been decided upon, a more moderate programme was deemed advisable. The procedure adopted was a daily examination of the tap water for the presence of B. Coli group of organisms by incubation of 100 c.c. in fractions and confirmation of the identity of lactose fermenters by incubation on McConkey Agar slopes in 6″ x 1″ tubes and testing positive colonies for fermentation characters and indol production. when the presence of B. Coli in significant numbers occurred the Medical Officer of Health was at once notified and complete examinations of samples taken from the high level and low-level reservoirs, as well as of the tap water, were made (as outlined above) If necessary regional samples from the main lines were subsequently examined.

The following table is a summary of the results :—

Table 29.

Source	Total number of samples taken during year.	Bacillus Coli Test. Minimum Bulk containing B. Coli (percentage of samples taken).				
		100 .c. —ve	100 .c.c +ve	50 c.c. +ve	10 c.c. +ve	1 c.c. +ve
Tap ...	251	60.9	17.5	15.9	3.6	2.0

A similar procedure was carried out in 1930. The incubation of McConkey broth tubes was limited to 24 hours by incubating at 40° C. for 6 hours followed by 18 hours incubation at 37° C. During the latter months of this year it became a routine procedure to make a count of the organisms growing on Agar at 37° C. in 24 hours.

The following Table summarises the results for the year :—

Table 30.

Source	Total number of samples taken during year.	Bacillus Coli Test. Minimum Bulk containing B. Coli (percentage of samples taken).				
		100 .c. —ve	100 c.c. +ve	50 c.c. +ve	10 c.c. +ve	1 c.c. +ve
Tap ...	268	80.6	5.6	5.2	4.8	3.7

During the year samples were collected on alternate days from various parts of the city. Samples from the laboratory taps were used on other days. In this way the condition of different parts of the service lines is tested from time to time. On one occasion the results from a regional sample led to further investigation which resulted in the detection of a slightly defective main in the area concerned. This defect was remedied and an immediate improvement in the quality of the water resulted.

On the whole it may be said that the standard of the water supply has reached a high degree of purity, principally as a result of the installation of the Candy Filtration Plant. In former years when the supply of water from the gravel tunnel fell below a certain level it was necessary to admit raw river water to the clear water basin in order to supplement the supply. Prior to admission the water was subjected to a rough and ready process of chlorination by means of bleaching powder. This system was never satisfactory and trouble was always experienced while it was in vogue. The erection of the rapid filtration plant has resulted in a very great improvement which has been reflected not only in the tables shown above but also in the very marked reduction in water-borne diseases which has been effected within recent years.

The tables indicate average results and it will be noted that in 1930 over 80 per cent. of the samples came up to the required standard of freedom from B. Coli of 100 c.c.'s. It would appear from investigation that in a fairly considerable proportion of the remaining samples the presence of B. Coli in amounts less than 100 c.c. was accounted for by slight contamination of the reservoirs by gulls. Contamination of this nature is not harmful to human beings, but in order to minimise further risk wires have been slung across the reservoirs to keep birds away.

Table 31.—Return of Work performed by Sanitary Inspectors during the year :—

	No. of Inspections
Houses, yards, etc.	50,173
Tenement Houses	13,235
Tenement Rooms	94
Infected Dwellings	1,408
Common Lodging Houses	608
Bakeries	88
Slaughter Houses	6,003
Meat Shops	9,228
Milk Shops	6,030
Tripe Houses	2,239
Meat Markets	936
Number of Notices to abate nuisances	2,572
Number of Justices' Orders	92
Number of prosecutions for Sanitary Offences	175
Amounts of fines imposed in respect of same	£8 6 0

TABLE 2.—Showing Monthly Rainfall in Cork for 53 Years ending 1930

Month	1878	1879	1880	1881	1882	1883	1884	1885	1888	1887	1888	1889	1890
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
January ...	2.28	8.32	1.70	1.39	3.91	6.63	5.44	3.80	3.03	4.35	4.09	2.99	5.96
Feb. ...	2.80	4.77	4.78	5.45	4.88	6.88	5.28	6.29	3.29	1.02	0.34	2.32	2.66
March ...	0.95	1.23	3.28	5.20	2.00	1.78	4.80	2.61	4.94	1.75	2.95	1.55	4.84
April ...	4.55	3.70	2.84	1.84	5.05	2.60	1.71	3.73	2.38	1.12	1.89	3.50	1.38
May ...	4.84	1.83	0.80	1.75	2.31	1.35	1.47	2.91	2.80	0.92	2.88	4.20	4.01
June ...	8.74	8.27	1.93	4.79	3.36	2.30	0.83	1.01	1.17	0.40	4.24	1.53	3.52
July ...	1.25	4.24	1.68	1.85	4.80	3.50	2.57	1.29	4.79	1.37	5.18	1.13	2.33
August ...	5.08	2.84	1.07	4.95	3.20	4.12	0.93	3.83	2.58	1.99	3.08	4.81	2.19
Sept. ...	2.42	3.25	1.80	2.38	2.05	5.02	1.83	4.60	3.78	2.15	0.80	0.97	2.50
Oct. ...	2.97	0.59	2.49	3.99	4.90	2.85	1.47	2.35	5.39	2.32	2 31	3.15	1.26
Nov. ...	1.88	0.85	5.24	5.95	4.57	4.03	3.18	2.89	2.24	2.28	5.71	2.38	4.75
Dec. ...	2.24	1.76	3.13	5.50	4.87	1.05	3.84	1.66	4.12	2.58	6.78	3.30	3.89
Year's Rainfall ...	38.00	41.41	30.74	45.88	45.98	42.18	34.22	36.57	40.31	22.25	41.09	31.81	39.19
Days ...	190	212	170	220	215	222	211	205	225	148	191	179	212

Month	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
January ...	2.27	2.28	5.43	7.02	5.48	1.11	4.00	2.27	5.05	3.43	5.33	1.64	8.07	5.30	3.46	5.42
Feb. ...	0.50	3.98	4.04	1.98	1.79	1.70	2.74	1.82	4.30	4.38	1.44	5.02	3.37	5.78	1.42	2.88
March ...	1.32	1.13	0.40	1.64	3.29	2.84	5.57	0.50	1.38	0.78	3.30	1.73	5.45	2.55	8.82	1.19
April ...	2.54	0.32	1.35	8.52	2.70	0.47	8.00	4.00	3.01	1.55	4.07	2.92	1.82	1.28	3.27	1.08
May ...	2.05	2.60	1.50	0.75	0.98	0.14	1.40	2.24	3.95	2.42	2.07	1.61	3.04	2.28	0.90	3.08
June ...	3.43	2.89	1.54	1.87	2.87	2.17	3.10	1.78	1.27	4.04	1.48	3.27	3.94	2.17	2.42	1.82
July ...	1.57	3.12	1.57	1.61	3.75	5.18	1.19	1.07	1.62	1.56	0.47	2.40	8.42	3.56	1.70	3.27
August ...	4.30	8.50	5.42	2.85	5.13	1.19	4.33	4.21	2.01	3.73	2.47	2.89	4.46	2.97	6.77	1.47
Sept. ...	3.24	3.41	1.31	1.27	1.13	5.80	2.08	2.79	1.21	0.83	7.81	2.02	4.07	3.88	1.35	0.84
Oct. ...	8.80	3.08	2.49	5.80	2.28	3.12	4.84	7.37	1.52	5.21	2.82	1.30	5.82	3.05	0.92	4.14
Nov. ...	4.46	7.87	1.97	5.72	7.06	1.52	4.80	2.96	2.75	4.52	1.52	8.52	1,64	1.85	4.64	3.14
Dec. ...	6.18	3.37	4.98	3.13	10.16	5.47	4.25	2.95	13.72	5.98	5.78	3.06	4.67	2.78	3.58	1.75
Year's Rainfall ...	39.24	42.85	32.00	40.14	46,62	31.49	44.36	33.80	41.85	38.41	38.58	37.28	52.77	37.22	37.25	29.86
Days ...	188	194	175	199	190	182	213	222	203	208	178	175	240	214	188	192

Month	1907	1908	1909	1910	1911	1912	1913	1914	1915	1918	1917	1918	1919	1920	1921
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
January ...	1.07	2.52	2.09	2.79	0.76	5.01	7.52	1.93	3.48	2.04	3.97	4.94	4.64	5.94	2.57
Feb. ...	1.86	1.15	2.35	5.42	2.37	4.78	2.38	8.46	7.44	4.30	1.45	6.12	3.88	1.87	2.56
March ...	1.13	4.00	3.17	2.49	2.81	3.69	4 04	5.33	0.72	2.34	3.325	3.69	2.48	4.14	2.91
April ...	2.99	2.27	5.87	1.88	2.13	0.54	3.01	1.37	1.59	3.25	1.12	1.73	1.30	5.54	0.54
May ...	3.58	2.28	1.80	1.85	1.82	1.36	4.59	1.40	2.52	2.91	4.045	2.75	5.18	5.38	1.86
June ...	3.53	3.73	2.27	3.93	2.94	5.17	2.12	0.88	2.18	3.03	1.77	1.11	0.03	3.22	0.02
July ...	2.20	2.40	0.97	2.12	2.97	5.08	0.195	3.00	5.22	2.40	1.57	4.43	1.49	3.96	3.77
August ...	2.98	3.38	0.25	5.24	2.32	3.21	2.27	3.78	2.22	3.76	6.54	2.53	3.13	2.28	3.59
Sept. ...	2.22	4.38	1.40	1.28	2.58	1.01	5.27	3.07	1.82	1.12	1.29	8.41	2.15	2.56	1.35
Oct. ...	5.07	3.21	5.72	4.03	4.50	2.52	8.025	1.51	5.84	9.13	3.51	3.39	0.51	3.95	2.90
Nov. ...	3.93	2.52	0.73	3.33	5.25	1.37	4.455	2.96	3.48	9.04	1.08	3.22	1.90	4.16	5.18
Dec. ...	7.02	3.80	3.49	4.82	8.72	3.18	1.41	10.73	8.58	2.04	2.86	7.12	4.58	5.12	1.84
Year's Rainfall ...	37.58	36.84	29.91	38.55	39.17	38.88	44.45	42.42	42.83	48.35	32.33	47.44	31.63	48.01	28.87
Days ...	224	196	170	225	180	244	211	213	198	211	182	219	189	217	178

Month	1922	1923	1924	1925	1928	1927	1928	1929	1930.
	In.	In.	In.	In.	In.	In.	In.	In.	In.
January ...	8.44	1.92	8.04	5.84	9.18	4.75	5.39	2.23	7.07
Feb. ...	4.42	8.53	2.97	4.45	4.74	2.00	3.42	8.10	1.03
March ...	2.22	3.98	1.31	0.22	1.50	4.70	7.33	0.89	8.88
April ...	2.08	4.28	2.44	5.51	3.04	1.21	5.88	1.48	2.09
May ...	1.67	0.95	3.82	4.35	2.87	2.38	2.80	4.05	1.87
June ...	0.80	0.14	3.70	0.83	2.28	2.57	5.00	1.21	2.15
July ...	3.21	2.37	3.81	2.77	1.87	4.35	1.01	4.29	2.79
August ...	3.01	5.38	2.15	3.03	2.50	3.88	5.04	2.16	5.36
Sept. ...	3.45	2.96	5.80	2.63	0.51	3.42	2.20	0.82	4.52
Oct. ...	1.06	4.81	4.22	5.31	2.87	3.48	6.41	3.22	5.12
Nov. ...	1.85	3.48	5.08	2.48	0.20	4.15	5.33	6.91	5.26
Dec. ...	4.34	2.27	7.48	4.13	0.48	8.43	5.61	10.78	3.97
Year's Rainfall ...	37.25	41.04	51.56	41.15	37.84	45.87	55.66	46.18	47.91
Days ...	201	214	225	197	209	220	231	198	198

Greatest month's rainfall 13.72 inches in December; 1899. Least month's rainfall, 0.14 inches in May, 1898, and 0.02 in June 1921.

Greatest number of consecutive days with rain was 31, ending February 12th, 1918. Greatest number of days witbout rain (absolute drought) was 26, ending July 3rd, 1887.